THE AMERICAN GAS LIGHT JOURNAL

PUBLISHING OFFICE No. 42 PINE STREET

DEVOTED TO THE INTERESTS OF ILLUMINATION, HEATING, MECHANICAL, CHEMICAL AND GENERAL SCIENCE.

VOLUME XC., No. 5. Whole No. 1,756. | NEW YORK, MONDAY, FEBRUARY 1, 1909. | $3 PER ANNUM, IN ADVANCE.

A. M. CALLENDER & CO., Proprietors. C. H. WADELTON, Manager.
THOMAS J. CUNNINGHAM and ELBERT P. CALLENDER, Editors.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND-CLASS MATTER.

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[OFFICIAL NOTICE.]

Thirty-ninth Annual Meeting, New England Association of Gas Engineers.

NEW ENGLAND ASSOCIATION OF GAS ENGINEERS,
OFFICE OF THE SECRETARY,
EAST BOSTON, MASS., Jan. 21, 1909.

To the Members, New England Association of Gas Engineers: The Thirty-ninth Annual Meeting of the New England Association of Gas Engineers will be held at Young's Hotel, Boston, February 17th and 18th, 1909. The annual dinner will be on Wednesday evening, Feb. 17th. A programme full of promise is being arranged, details of which will be announced shortly. N. W. GIFFORD, Secretary.

[OFFICIAL NOTICE.]

Announcement of Meeting, Southern Gas Association.

SOUTHERN GAS ASSOCIATION,
OFFICE OF THE SECRETARY,
ROME, GA., Jan. 15, 1909.

To the Members of the Southern Gas Association: The Southern Gas Association will hold its next meeting in New Orleans, La., the 18th, 19th and 20th days of February. The date has been fixed by the Executive Committee so that all desiring to attend may have the benefit of the Mardi Gras railroad rates, which will go into effect Feb. 17.

I forward application blanks and copy of the Constitution and By-laws, which will inform you (Sections 6 and 6a) as to the requirements for active and associate membership.

If you are already enrolled as a member of the Association, kindly place the blanks in the hands of your associates and friends, who may be desirous of joining. If you are not already one of us, I will be pleased to receive and file your application. Yours truly,

JAMES FERRIER, Secretary.

BRIEFLY TOLD.

ATTENTION, MEN OF MICHIGAN.—Mr. Alonzo P. Ewing, the thoroughgoing Secretary of the Michigan Gas Association, is wideawake to the fact that any change in the usual meeting time and place of an Association is apt not to be given that close attention which such changes should receive. In fact, the matter, on first thinking over, is dismissed in the knowledge that there will be "plenty of time between now and the meeting to attend to it." However, time steps by, and when the party is ready to sally forth, or otherwise emerge for the securing of his transportation, he has to hunt, sometimes with indifferent success. At any rate, the Secretary, in asking us to assist in spreading this advance information respecting the Michigan's coming meeting, explains:

The Michigan Gas Association is planning to have its next meeting on board one of the magnificent D. & C. steamers, the trip being made from Detroit to the Soo, giving at least one-half day on land; from there to Mackinaw Island, with part of a day for sight-seeing; then the return to Detroit—this requires the putting in of 3 days. In addition to the ordinary reasons, therefore, for keeping close notice of the meeting time is the fact that it will be necessary for the officers to guarantee an attendance of 200 to secure the funds requisite to defray expenses. Although it is quite a long hark to the meeting, the officers feel that it is none too early to have the pledges made so that the details—boat hiring, etc.—may be attended to now rather than during the busy excursion time of the D. & C. folks. We understand that an advance pledge means an active subscription of at least $10, whether the trip privilege is subsequently actually participated in personally or not. In any event communicate at once with Secretary Alonzo P. Ewing, at his headquarters in the "Gas Office Building," Detroit, Mich.

LIBRARY OF CONGRESS
SMITHSONIAN DEPOSIT

CURRENT MENTION.—

THE offices of the Empire State Gas and Electric Association have been removed from the Tribune Building, 154 Nassau street, to the United Engineering Societies Building, No. 29 West 39th street, New York city. The telephone number is, Bryant, 4600.

EVEN though his life was long, and its burdens sometimes heavy, it is with regret that we chronicle the passing away of Mr. Levi Corley Hanford, at his home in Norwalk, Conn., the evening of January 21st. Mr. Hanford was born in Lansingburgh, N. Y., July 5, 1833, and originally engaged in the drug business in that city late in the '50's. A good opening presented itself when he was asked to join the forces of the old Lansingburgh Gas Light Company. He continued with that corporation until 1868, when he went to South Norwalk, Conn., to take up the duties of its General Manager and Superintendent. This work he carried on with fidelity and success until 1900, or when the Runkle interest purchased control. He then retired from active business, going back to his birthplace there to live out his remaining days. He was elected to membership in the New England Association of Gas Engineers at its third meeting. This membership we think he gave up in 1905. His immediate survivors are his widow and two sons. The remains were interred in Oakwood Cemetery, Lansingburgh, the afternoon of the 25th ult.

THE payment to the City Treasurer, of Philadelphia, under the royalty clause by which the United Gas Improvement Company operates the City Gas Works there, for the last quarter of 1908, amounted to $293,765. The corresponding payment in 1907 amounted to $201,520.

THE Winnipeg City Council has declared against purchasing the plants of the McKenzie-Maur Company, which combination operates all the local municipal public services—gas, water, electric and street railway. The city now proposes to build its own municipal power plants at a suitable point along the Winnipeg river. The higher officials in the Manitoba government are said not to be in sympathy with the project.

THE New Business Division of the Rochester (N. Y.) Railway and Light Company recently purchased ample space in the local newspapers to warn their customers against purchasing certain burners that were being extensively put out by peddlers, who were "guaranteeing" purchasers certain large savings in their gas bills. Here is one paragraph in the "ad.," and it certainly reads like the manner in which "R. M. S." speech sounds: "If you are in doubt as to the honesty of purpose of this 'ad.,' take one of these burners to the City Testing Bureau, at City Hall, and have it tested and explained to you. That Bureau is maintained to protect you."

Report of the Public Service Commission, First District, State of New York.—No. II.

The report of the Public Service Commission, covering the first 6 months of its existence, from July 1st to December 31st, 1907, is divided into two volumes.

Volume I. is principally given over to general matters, especially as to transportation facilities. The major portion of the data in this volume on lighting companies has appeared in previous issues of the JOURNAL.

Volume II. is devoted to statistics, although the accompanying text has been prepared in a most readable manner. The Commission lays great stress upon capitalization, and the only charts in the book, of which there are two, show comparative capitalization and value of property, and construction and comparative capitalization per mile of main per 1,000 cubic feet manufactured, and per 1,000 cubic feet of daily capacity. All of the figures given in this Volume are based upon reports made by the companies, and the Commission states: "It has not audited the accounts of the corporations. * * * No one should infer from the publication of these figures, therefore, that the Commission accepts their accuracy."

The total value of the stock issued for the operation of all of the gas and electric corporations is given as being $119,569,950, and is divided among 7,210 stockholders, or an average of $16,584. Less than 10 per cent. of the stock is preferred. The total outstanding funded debt amounted to $159,099,983.80, and practically all of which is held by the public, not by the companies themselves.

The total outstanding capitalization is given as $273,901,933.80. The total property and construction value is given at the sum of $324,810,197.83, but the Commission also states as follows: "What this sum represents cannot be stated with accuracy." The above figures on capitalization are exhaustively analyzed along the lines given in Tables I. and II.

TABLE I.—*Showing Capitalization of Gas and Electric Companies.*

	Gas.	Electric.
Capitalization for every $100 of gross earnings from operation	$708	$599
Reported value of property and construction to every $100 of gross earnings	553	716

TABLE II.—*Showing Capitalization of Gas Companies.*

	Per 1,000 Cubic Feet Daily Capacity.	Per 1,000 Cubic Feet Manufactured.	Per 1,000 Sold to the Public.	Per Mile of Main.
Average capitalization (stocks bonds and	$1,114	.598	.647	65,966
Average value of property and construction	895	.480	.495	49,742

The investments of gas and electric companies in stocks and bonds are given as follows:

	Par Value.	Cost on Books.
Securities of lighting companies	$119,785,183.17	$71,333,131.13
Other investments.	10,739,257.02	10,540,042.67
Total	$130,524,440.19	$81,873,173.80

COST OF MANUFACTURE.

The average net cost of manufacture per 1,000 cubic feet ranges from 29.07 to 44.94 cents, the average being 32.33 cents. The figures upon which the last named price is based are given as follows:

Reported cost of operation and repair	$12,094,619.83
Value of residual products	888,707.45
Net cost of gas made, as reported	11,205,912.38
Total quantity made, cubic feet	34,656,922,000
Average net cost per 1,000 cubic feet	32.33 cents.

COST OF DISTRIBUTION.

The average cost per 1,000 cubic feet of distribution ranged from 5.63 to 18.38 cents, and the average was 7.83 cents. The total cost of distributing the 32,735,442 cubic feet was $2,564,053.69.

COMMERCIAL AND GENERAL EXPENSES.

The average cost per 1,000 cubic feet for commercial and general expenses was greater than the cost of distribution, ranging from 6.70 to 21.02 cents; the average being 9.19 cents. The total expense was $3,009,523.77.

TAXES.

The average cost per 1,000 cubic feet for taxes did not vary over as great a range as in the case of either distribution or commercial and general expense, the lowest being 2.43 cents, the highest 7.63 cents; the average 5.97 cents. The total sum was $1,952,753.59.

UNCOLLECTIBLE BILLS.

The loss through bad debts aggregated $371,502.61, an average of 1.14 cents per 1,000 cubic feet sold. The range was very wide, being from 0.07 to 3.13 cents.

LOSS IN DISTRIBUTION.

The average cost of the gas lost through leakage was 1.77 cents per 1,000 sold, ranging from 0.94 to 6.73 cents.

DEPRECIATION, CONTINGENCY AND RENEWAL EXPENSES.

Only 11 of the 18 companies make charges for depreciation, in spite of the many warnings received from their associates. The total amount charged for the year 1907, $3,326,331.26, which represents an average cost of 10.50 cents per 1,000 cubic feet sold by the 11 companies, is severely criticized by the Commission.

TOTAL COST OF SUPPLYING GAS TO CONSUMERS.

According to the reports of the companies the average cost of supplying gas throughout the city ranged from 59.83 to 94 cents; the average being 68.32 cents. This last figure should read 61.24 cents according to the Commission. Neither do these figures include any return upon capital invested.

FIXED CHARGES.

The figures given as to fixed charges show a greater variation than any other of the tables presented. In one case the excess of miscellaneous income over fixed charges was 8.51 cents (Consolidated), while in the case of the New York and Queens Gas Company the net fixed charges were 38.91 cents; the average net fixed charge is returned at 3.33 cents.

COST OF GAS, INCLUDING FIXED CHARGES.

The companies which have the minimum and the maximum fixed charges also have the same position in the table showing total costs. Thus: Consolidated Gas Company, 61.38 cents; New York and Queens Gas Company, 126.85 cents.

PROFITS OF GAS MAKING.

The Commission apparently intends to leave no doubts in the mind of the public as to the over-capitalization of some of the lighting companies, for they have prepared a table showing the relation between the total profits capitalized at 6 per cent. and the actual capitalization—stocks and bonds.

The report is concluded with some 200 pages of statistics, on cost of operation, balance sheets, etc., and inventories of plants.

Address of the President (Mr. James W. Dunbar) of the Indiana Gas Association, at the Meeting Held in Indianapolis, January, 1909.

Gentlemen of the Indiana Gas Association: I congratulate you upon having effected the organization of the Indiana Gas Association, and thank you for the honor of presiding over your first deliberation. The consolidation of the Ohio, American and Western Gas Associations into the American Gas Institute has made imperative, where a fairly large number of companies exist, the organization of State Associations, and we are but following the action taken by representatives of the industry in different States. By reason of Indiana having been in the "Natural Gas Belt," many of the artificial producing plants found it necessary, upon the introduction of nature's supply, to altogether discontinue the manufacture, or to so reduce the amount of production that operation was, in the hope of saving property, conducted at a great financial loss. With the diminution in the supply of this remarkable product from the depths, it is but reasonable to infer that the manufacture and distribution of gas will assume the proportions commensurate with the rapid growth and development of our commonwealth, which in the political, literary, agricultural, manufacturing and commercial arena, have earned for itself a name and reputation among the States. Each 4 years we have from one or more of the political parties a Presidential or Vice-Presidential candidate, for the nomination, or a laudable exhibition of patriotism manifested in some ambitious statesmen to direct the Committee waging the National warfare for reform. The productions of our literary geniuses are read with interest the world over. Perhaps in no other State is there such a plethora of authors. In the value of agriculture and manufacturing products our State is, in the former instance, well nigh foremost; in the latter it is forging to the front. Our own industries, due to the small number of cities in excess of 20,000 people at the time of the introduction of natural gas, were not numerous enough to organize for mutual dissemination of knowledge; but with the change in conditions, providing no adverse legislation prevails, we hope for a stimulating growth, both in the number of producing plants and by means of high pressure distribution, the introduction of gas for light, fuel and power into smaller towns, which of themselves would be non-supporting to a local company plant.

We are assembled largely as the practical directors of our representative plants, not as representatives who direct the policies of our companies. Matters pertaining to the more efficient and economic problems of production and distribution will require and receive our consideration, the advantages accruing from which are too evident to require enumeration.

Our annual meeting, aside from the consideration of its prepared programme, affords opportunity for the dissemination of knowledge among members, by the interchange of views and experiences resulting from heart-to-heart talks during the hours the Association is not in session. The programme for this meeting shows that we realize the importance of extending our business and affording satisfactory service to the consumer at the lowest possible cost. It is hoped that the members will avail themselves of the privilege of taking part in the proceedings, especially in the discussion of papers, thereby contributing their share of experience to the success of the meeting. Let no one, because his experience or fund of information may to him seem trivial, be deterred from taking part in these proceedings. It is because man is not acquainted with simple, fundamental truths that he does not achieve greatness, and our everyday trials and failures are but due to our perceptive faculties failing to recognize and transmit to our minds those discernments which, when recognized and acted upon by the man of good, horse, commonsense lead to the goal. The simple questioning thought awakened in the mind of Sir Isaac Newton, when he saw an apple fall from a tree, suggested the train of thought that explained and made clear the law of gravitation, not only as it applied to our own planet but suggested the hypothesis that resulted in establishing the same fundamental law as applied to hundreds of millions of suns, with their respective planetary systems and satelites, compared with which our own globe, the earth, is but as a molecule in the composition of mass.

As we proceed and progress, the Executive Committee will suggest or inaugurate such committees for work as seem necessary. There are two recommendations at this time that I submit. One is the appointment of a "Committee on the Disposal of Residuals" and the other is a "Committee on Information." I am of the opinion that we are not receiving for our residuals a net price commensurate with their value, occasioned, I think, in instances of coke being sent to foreign markets, sold below the prevailing prices, resulting in railroads only being the benefited party, whereas the plan should be to develop along reasonable prices, but at a true worth, a staple home demand. In the matter of tar, as in coke, long distance shipments prevail. If we would take care of demands in our respective territories, and arrangements could be made to work up our tar at some central point, advantages would accrue to our companies' profit at no increased cost to the consumer. The marketable ammonia product presents many different phases, concerning which, as well as those of coke and tar, the committee appointed could make valuable suggestions and recommendations. The Committee on Information would receive, through the Secretary, such inquiries that in the experience of the questioner furnished no guide for direction; of course, rules for direction and restriction of the scope of the committee's work would be necessary.

During the past year no new innovation pertaining to the manufacture or distribution of gas has superseded prevailing practices, although the application of new methods of comparatively recent years has become more universally recognized and adopted. The merit of the rotary station meter is meeting with approval. Consumers' meters of large capacity, known as the A and B type, have a large number of champions; but it has always appeared to me that the cost between a 5 and 10-light standard meter is so comparatively small that, with their well known standard of efficiency, one should go slow before deciding upon their being substituted by the newer types. Installations of vertical retorts have been proven a practical success, but are hardly applicable to medium size or smaller plants. The steadily increased cost of retort house labor, coincident with the continued reduction in the selling price of gas, would seem to indicate the introduction, or the more general adoption in medium and large size works, of "inclines," or the installation of mechanical charging and drawing apparatus in the use of through, horizontal retorts. In distribution higher pressure continues to be the practice. Its adoption in territories sparsely populated will enable the extension of the service to small towns, supplying rural territory *en route* that could not otherwise be served. Its adaptability is recognized in the boosting of pressure, at a small outlay of cost, in a distributing system where existing mains are insufficient. At the meeting of the Western Gas Association, 1905, Mr. J. D. von Maur read a paper on the subject of "Cement Joints," relating his successful experience in St. Louis. The reading of this paper brought to the minds of the members of the gas fraternity a realization of the great saving in cost and the superior joint afforded. The use of cement for joints since that time has become more general, and where solid ground exists it makes the pipe line superior to any other that can be laid, both as to tightness of joint and economy of construction.

As President of this Association it may not be within my province to pass judgment upon the antagonistic sentiment prevailing among the public, resulting in legislative enactments, summarily reducing the price of gas to the consumer, of which we are becoming familiar, to a point at which gas cannot be furnished at a profit to the investors, which, if persisted in, will retard investments and the extensions of mains into new territory; but as a citizen of our State, as well as a member of this Association, interested in a fair deal due an industry that is developing its business almost to its full possibility, and which has the right to expect reward for enterprise, realizing the wrong opinion entertained of us by some citizens, I feel a few words on this subject not to be amiss.

The final court, in the case of the Consolidated Gas Company, of New York, has indicated that such legislation fixing the price of gas is binding, unless a company can show it is unable to make 6 per cent. upon the investment, and that a time must intervene before it shall be qualified to so prove. In the meantime the patient may die. As a general proposition no inventor will run the risk of a failure for the possible attainment in securing such an investment. Experience in Indiana, passing through the natural gas period, has proven many gas properties not to have been paying properties. What substitution may again be forthcoming no man can tell. The antagonism to corporate investment relating to gas properties, in the clamor for reduced prices, is the result of unjust demands without due consideration and calm unprejudiced judgment. Gas companies have been more progressive and more in accord with wise business methods resulting beneficially to the consumer than the public realizes. The history of the industry has been a continual, steady, reduction in rates, with a view to the more general introduction of gas. Services are frequently installed free of cost. Stoves and fixtures are sold at

cost, and on the installment plan. New, economical appliances for burning gas have been recommended, advertised and sold by the companies, although their introduction has reduced the company's income. Every attention is paid to giving a customer the most for his money. Progressive commercialism prevails as in scarcely no other business. Owners of gas properties have realized their success is dependent upon furnishing gas of good quality at the lowest possible price. If any exception may be noted it has been in small plants controlled by local capitalists, who have been brought face-to-face with incomes insufficient to justify increased investment, and where the gross sales of gas, if all were profit, would hardly pay a decent dividend.

The public are not maliciously unjust; they are honest. But they do not realize how cheap a commodity gas is, and that profits are largely the result of enterprise and progressiveness. It is a fact, with perhaps few exceptions, that a gas company cannot hope to have gross sales of gas amounting to more than 20 per cent. of cost of construction, while a majority of gas companies' incomes are equal to but 15 per cent. of cost of construction, out of which must be paid taxes and running expenses, and depreciation should also be provided for. Many manufacturing and business enterprises, and the public as well, would not consider this total amount an unusual profit.

A firm may have invested $100,000 with which capital its management may be able to do annually $500,000 worth of business; 5 per cent. profit on the business transacted means $25,000, or a 25 per cent. investment. If this firm does $300,000 worth of business and makes 6 per cent. profit on the business, it means an 18 per cent. investment, and if they do $100,000 worth of business and make $7,000 it means a 17 per cent. investment. Gas plants cannot be constructed at a cost to enable the owners to sell in many years at $1 per 1,000 cubic feet enough gas to equal amount invested. Indiana is a rich State, the business enterprises of its citizens have been successful, everywhere is evidence of fortunes made on aforesaid basis of calculations by men of business sagacity, and these fortunate persons are almost deified as benefactors of the human race. Enterprise in furnishing artificial gas for fuel and light is as commendable as any, yet where is the community in Indiana in which fortunes have been made in the gas producing business? Some whom I have known who fight gas companies would consider themselves poor if they did not realize 15 per cent. from their business investment. There are small companies in small towns whose gross sales annually do not equal 10 per cent. of their investment. To subject such enterprises to unjust restrictions is unwise and unfair. In some instances it seems the policy to impose these unjust restrictions upon a company, putting it to the expense of righting a wrong. I remember one legislator who stated he had not time to investigate the justice or fairness of a measure, so he would vote for the people and let the company go into court! That the public is entitled to protection and consideration from a business necessarily a monopoly, all must fairly admit. The public should receive the product at a minimum price, consistent with a fair commercial profit. How this is to be attained, doing justice to all, is the problem. In England the practice prevails of permitting a gas company to increase dividends coincident with reduction in price. This practice prevails in Boston, Massachusetts, in which State gas companies are under supervision of a Gas and Electric Commission whose labors have been alike satisfactory to the Commonwealth and the gas companies,

In the gas business, enterprise, progressiveness and uprightness should be recognized, appreciated and rewarded. To say that such a corporation should be restricted to 6 per cent. means that those not pre-eminently endowed must be crushed to earth. In no other State is there such possibility for development in the extension of a gas distribution system as in Indiana. If the industry is to be menaced by drastic legislation, and 6 per cent. is the ultimate possible hope of returns, together with possibilities of failure, other fields will afford more attraction for investors.

In conclusion, I will state we are engaged in furnishing a former luxury at so cheap a price that it has become a necessity. Gas is the cheapest artificial light in the world; cheaper than electricity, coal oil or candles. From an incandescent lamp 3 times the candle power of light is obtained with gas at $1 per 1,000 than from coal oil. As an indication of the cheapness of gas, I will state in my own city we furnish gas to one-half of the inhabitants. Our sales returns are equal to about 20 per cent. of incomes enjoyed by our best patrons, our friends, the saloon proprietors, and we have, living in New Albany, the best people on earth. Intemperance nowhere greatly prevails. Even the expense of chewing tobacco disposed of by many of the wage earners is in excess of gas bills for fuel and light, to say nothing of amounts that go up in smoke. Gas is the cheapest household demand, made so by our businees sagacity and enterprise, but we have friends and kickers. The latter exist everywhere. It is not surprising they create a sentiment against us. A few are all that is necessary to create the sentiment. We need protection against the unjust disturber. Our policy in any event is to realize we are the servants of our customers, whose goodwill we crave and to whom it is our pleasure to give good service at the lowest limit of cost consistent with fair returns.

For some time immediately preceding this meeting I was absent from the State, and all the details in arranging for it fell upon the shoulders of Mr. Eves, our Secretary, whom it gives me great pleasure to commend for faithful and conscientious performance of duty.

Gentlemen, the meeting is now in your hands, and I bespeak your efforts for its success at this time so it may give evidence promising a useful career.

[Furnished by the Secretary.]

PROCEEDINGS, THIRD ANNUAL MEETING, AMERICAN GAS INSTITUTE.

Held in New York City, October 21st to 23d, 1908.

First Day—Morning Session.

The Third Annual Meeting of the American Gas Institute, held in the United Engineering Societies Building, was called to order at 10 A.M., October 21st, by the President, Dr. Alexander C. Humphreys.

ROLL CALL.

[For members in attendance at the meeting, see Journal, Vol. LXXXIX., Nov. 23, 1908, p. 890.]

Routine Summary.

The President called the meeting to order. On motion of Mr. Baehr the minutes of last meeting, as submitted, were ordered adopted.

The President said that although the proceeding seemed a bit unusual, he would anticipate the Report of the Board of Directors. In respect to the

Election of New Members,

he would ask that a departure from the usual custom be made, further remarking it would be in line with expedition to have the names of the gentlemen indorsed for membership read now, have them voted for and then introduced to their associates. On motion of Mr. Doty this course was agreed upon.

REPORT OF THE BOARD OF DIRECTORS.

The President—We are now about to take up the Directors' Report and in that connection I wish to make an explanation. It has to do with the method in which the business of the year has been carried on. Last year Mr. Dunbar declined to permit his name to be used for the election as Secretary. A committee had been appointed to nominate a Secretary, or suggest the name of a man for Secretary and Treasurer. That committee was unable to bring forward a recommendation, so at the last minute Mr. Dunbar was requested to accept the combined office of Secretary and Treasurer, with the distinct unstanding that we would not call upon him for any labors, except the official matters of signing papers and the like, and the closing up of the work of the past year. Mr. Dunbar kindly consented to this suggestion and was elected under that stipulation.

Under the direction of the Board of Directors, the President was required to arrange as he best might for the carrying on of the work that ordinarily devolves upon the Secretary and the Treasurer, and that was done by appointing Mr. West Bissell as Assistant Secretary in charge of the headquarters, and having Mr. Robert O. Luqueer, an active member of the Institute, assist the President at his own office in the balance of the duties of the Assistant Secretary. Mr. Luqueer will read the report of the Directors.

Mr. Luqueer read it as follows:

New York, Oct. 21, 1908.

To American Gas Institute - Gentlemen: The Board of Directors has the honor to submit its third annual report as follows:

Occurrences of Past Year.

Meetings.—Three meetings of the Board have been held during the year, viz., March 17th, August 20th and October 20th, at the head quarters, New York city.

New York Headquarters.—The permanent headquarters, rooms 801 and 802, of the Engineering Societies' Building, West 39th street, New York city, have been furnished and open since November, 1907, for the use of members, with Mr. West Bissell in charge as Assistant Secretary.

Delinquent List and Statements of Account.—On taking up the work of the year it was found that a large sum was owed to the Institute in unpaid dues and fees. The practice of sending out monthly statements of accounts was inaugurated and has resulted in a very material reduction of the delinquent account.

Sales of Proceedings, Pamphlets, Etc.—The records, "Proceedings" and other effects of the three old Associations having been collected at headquarters, the Institute found itself in possession of a quantity of matter for which it did not have adequate storage space—in fact, it became necessary to obtain a small room in a storage warehouse to relieve the headquarters' rooms. This being the case, an effort was made to dispose of as many of the past publications as possible, and a circular was inclosed to each member of the Institute with the annual "Proceedings," giving a price list of the matter in stock. While the sales resulting from this circular were encouraging, they were by no means sufficient to relieve the Institute of the necessity of renting a storage room.

Badges.—A circular bearing a facsimile of the membership badge and requesting purchases was sent to each member of the Institute. As a result a number of sales were made, but the Institute still has in stock a large quantity of badges which were purchased under the original contract which was made with the expectation that there would be a heavy demand for badges. This demand has not materialized and, as a consequence, the Institute still has a considerable sum idly invested.

By-Laws.—The Board of Directors, at their meeting held March 17, 1908, passed amendments to the by-laws as follows:

By-Law No. 1.—Amended so that when applications of candidates for membership are personally signed by the requisite number of members, the requirement of confidential letters of indorsement is optional at the discretion of the Membership Committee instead of obligatory as before.

By-Law No. 4.—Amended by dropping out the words "June" and "December," so that the ballots for election of candidates to membership now go out twice a year (on or about the first days of March and September) instead of four times.

The by-laws as found in Vol. II. of the "Proceedings" will appear amended as above. The Board of Directors, at the meeting held October 20th, passed amendments to the by-laws as follows:

By-Law No. 3.—Striking out the words "At their first meeting each year," and substituting the words "Immediately after the meeting at which they are elected." This change was made to conform to the provision for appointment of the Finance Committee, as both of these Committees have to take up their duties promptly after the adjournment of the annual meetings.

By-Law No. 22.—Striking out the words "At their first meeting each year," and substituting the words "Not later than 6 months prior to each annual meeting of the Institute."

As thus amended more definite provision is made for the appointment of the Arrangement Committee.

By-Law No. 4.—After the words "Delivered unopened to the Secretary," on the third and fourth lines from the top of page 990, 1907 Proceedings, insert the words "Which shall be counted as an affirmative vote on all the names not crossed out." Also, striking out the word "he" and substituting the words "the Secretary." These changes were made to give a more definite indication of the purpose of the By-Law.

By-Law No. 14.—Add to the end the words "In the manner prescribed in By-Law No. 15."

By-Law No. 15.—Add at the end the words "At once, unless the election is postponed as covered by By-Law 14. In either case poll may be opened outside the meeting room in some adjacent and convenient place. If there is no objection, one ballot may be cast for those nominated by the Committee." The amendments to By-Laws 14 and 15 bring into accord the several provisions in the Constitution and By-Laws in relation to election of officers and directors, and also provide for an open poll, outside the meeting room in case of contest, so securing non-interference with the progress of the meeting.

By-Law No. 9.—After the words "Certificate of Membership," insert the words "in accordance with his grade." This change provides for the certificates of membership indicating thereon the grade of membership.

A new By-Law, to be known as No. 23. "At the opening of the first session following the election of officers the President shall appoint a committee of three to recommend the place to be designated by the Institute for the next annual meeting."

By-Law 23.—To be renumbered 24.

By-Law 24.—To be renumbered 25.

Abstracts.—The Board of Directors last year in the report to the Institute recommended that the issuance of the Abstracts be continued.

At its first meeting this year the Board, after careful consideration, decided that the finances of the Institute did not warrant the publication and distribution of the Abstracts free of charge. A circular letter announcing this decision, and asking for subscriptions from those who desired the Abstracts, was sent to each member of the Institute and, as a result, there are now slightly more than 300 subscriptions on the list for $5 each. This income is just sufficient to cover the cost of printing and distributing the publication to the subscribers, the original matter being donated to the Institute by the United Gas Improvement Company.

Two issues of the "American Gas Institute, Bulletin of Abstracts" have been distributed to the subscribers this year—the first a large issue of 699 pages, and the second a smaller issue of 176 pages. These two issues complete Volume 2. Henceforth the "Bulletin" will be issued bi monthly, and application to enter it as second-class mail matter is now pending at the New York Post Office. If this application is granted, there will be a material saving in the cost of distribution.

Affiliation.—The matter of affiliation, under the agreement drawn up in accordance with Section 55 of the Constitution, has been taken up with the following State and District Associations:

Illinois, Iowa District, Wisconsin, Michigan, Indiana and Pacific Coast Gas Associations, and the Empire State Gas and Electric Association. The Illinois, Wisconsin and Iowa Associations have affiliated.

Mr. J. H. Eustace, of Chicago, was elected by the Illinois Association as its representative member on the Board of Directors of the Institute; Mr. S. J. Glass, of the Wisconsin, and Mr. Jansen Haines by the Iowa Association. The original research work undertaken by these affiliated associations will be later referred to in the Report of the Technical Committee.

The Pacific Coast Gas Association has declined the invitation to affiliate, stating "It was decided that, by reason of the territorial boundaries of the Pacific Coast Gas Association, and its remoteness from Eastern centers, it would be to a great extent detrimental to the interests of the gas companies on the Pacific Coast to surrender the peculiar privileges which are enjoyed in the maintenance of the entity of the Pacific Coast Gas Association." The matter is still under consideration by the Michigan, Indiana and the Empire State Gas and Electric Associations.

Certain questions having developed during the past year in regard to affiliation, including the interpretation of Section 55 of the Constitution, in relation thereto, your Directors adopted the following interpretation of Section 55 to govern until further orders:

"In regard to the work of the affiliated societies, Section 55 of the Constitution is interpreted by the Technical Committee to mean that the affiliated societies shall appoint, each year, a committee of one or more to undertake research work, that the selection of subjects for this work, and the work itself, shall be under the direction and supervision of the Technical Committee, through the proper officials of the affiliated societies. But we interpret this to mean that the affiliated societies may undertake other research work provided that they consult and advise with the Technical Committee on such other work, as far as practicable."

Your Board further referred the whole subject of affiliation to a committee of five, to be appointed by the President, this committee also to recommend the necessary changes, if any, in the Constitution and By-Laws. The President appointed as such committee: E. G. Cowdery, H. L. Doherty, Walton Clark, J. H. Eustace, Jansen Haines.

Exhibition.—Last year the Board recommended that, at future meetings of the Institute, an exhibition room be provided for any exhibits of apparatus and appliances that manufacturers might desire to make. Your Directors, after careful consideration and discussion, decided to forego the exhibition *this year* and to co-operate with the

National Commercial Gas Association in giving a joint exhibition. This decision was reached after a conference with a committee of the Commercial Association at which the question of affiliation with the Institute was discussed. It was decided that affiliation was not feasible under the present rules, but that co-operation would be highly desirable. Co-operation along the line of exhibitions commended itself to your Board of Directors. The time of our annual meeting (October) is too early in the season to best suit the manufacturers; your Directors were assured that an exhibition in the West would please the manufacturers who, for 2 years past, have been exhibiting in New York City, at the Commercial meeting at a considerable expense. The Commercial Association was willing to have its next meeting in the West and decided upon Chicago as the place, and December 8, 9 and 10 as the time. The fact that the place of the Institute meeting had been changed from Detroit to New York seemed all the more reason why the Institute should join with the Commercial Association in giving this exhibition in the West this year.

The joint exhibition is in charge of a committee of 7, consisting of 4 members, including the Chairman, from the Commercial Gas Association, and 3 members from the Institute. The 3 gentlemen appointed on this committee to represent the Institute are: Mr. H. L. Rice, Mr. V. F. Dewey and Mr. W. J. Serrill, from whom a report will be received at this meeting.

International Committee for Standardization of Threads for Gas Appliances.—The Institute was invited by the "Societe Technique de l'Industrie du Gaz en France," to take part in an international conference for the purpose of studying and carrying out the standardization of the screw threads on gas appliances. The Technical Committee appointed Mr. A. G. Glasgow, as delegate, to attend this conference, and his report will be received at this meeting.

A very complete exhibit was prepared under the direction of the Technical Committee consisting of models of the various forms of threads in use in the United States. This exhibit was forwarded to Paris and presented to the French Society. It was of material assistance to the delegates.

Through the intervention of the American Gas Institute, the American Society of Mechanical Engineers were also invited to take part in the conference, and their delegates attended and acted in complete accord with the representatives of the Institute.

Bureau of Information.—The question of the continuation of the work of the Bureau of Information was referred at the last annual meeting to the Technical Committee. This Committee appointed the members composing the Bureau of Information this year. The result of the work of the Bureau is fully set forth in the report to be later presented at this meeting.

Question Box.—The revision of the Question Box on "Manufacture of Gas," was not completed to the satisfaction of the Committee having the matter in charge in time to be included in last year's "Proceedings." The Board of Revision will report at this meeting.

Beal Medal.—The thanks of the Institute are due to Mr. William R. Beal, for his continuance of the yearly award of the Medal bearing his name, for the benefit of the Institute. It will be remembered that this medal was offered yearly by Mr. Beal to the American Gas Light Association for award to the writer of that paper which was considered the best of those presented at any annual meeting. A committee consisting of three Past-Presidents of the Association were judges of the papers and, if no paper was in their estimation of sufficient merit, no award was made.

The Board of Directors, on behalf of the Institute, has accepted Mr. Beal's offer and recommends that the former method of decision as to the award be continued, except that if, for any reason, it would not be possible to obtain a committee of three Past-Presidents of the Institute, the necessary number to complete the committee shall be chosen from among the Past-Presidents of the American Gas Light Association. As under our present organization much of the best work may be done by committees, the Directors asked and obtained Mr. Beal's consent to allow committee reports to be considered as well as papers in awarding the Medal in the future. As yet, no scheme has been worked out whereby the Medal may be awarded to a committee. The Board has this now under consideration. The Beal Medal Committees appointed to consider the papers presented at the 1906 and 1907 meetings of the Institute, will report at this meeting. The Institute, as the successor of the American Gas Light Association, will also receive at this meeting the report of the Beal Medal Committee on papers presented at the 1905 meeting of that Association.

Change of Place of Meeting.—At the last annual meeting, Detroit was decided upon as the next place of meeting. The President, believing that it was to the interest of the Institute to have the meeting this year in New York, presented the case to Mr. Lynn and his associates, and, after obtaining their consent to his proposed change, laid the matter before the Board of Directors. The Board of Directors also consenting to the change, a letter ballot of all the active members was taken, with the result that a large majority voted in favor of the change, and so the meeting was arranged for New York.

Next Place of Meeting.—The President was authorized to appoint a Committee to recommend the next place of meeting at the opening of the first session following the election of officers.

Committee on Arrangements.—In accordance with By-Law No. 22, the following Committee on Arrangements for the meeting was appointed: W. R. Addicks, Chairman; J. H. Jourdan, E. E. Witherby, A. E. Forstall, C. H. Dickey, R. A. Carter, A. P. Lathrop, S. F. Hayward, G. G. Ramsdell, W. J. Clark, W. Cullen Morris, T. R. Beal, W. M. Eaton, G. E. Woods, R. O. Luqueer, Colin C. Simpson.

Sectional Work.—The Committee on Sectional Work reported its recommendations, which were discussed at length. The Board referred the matter back to the Committee with the request that it confer with the Committee on Affiliation already appointed, and lay before the Board a joint report and recommendation not later than February 1st next.

International Incandescent Photometric Commission.—The Technical Committee having called attention to the need of a representative on the International Incandescent Photometric Commission, organized in Paris during the year 1900, the Board requested Mr. Arthur G. Glasgow to serve in such capacity to succeed Dr. E. G. Love, the former representative of the American Gas Light Association on that Committee.

Public Relations Committee.—The Public Relations Committee reported that no matters had come before it for definite action, but steps had been taken to determine whether some measure of co-operation between the Institute and the League of American Municipalities could be developed in the interest of the gas industry. The Committee reported that it had suggested that the League appoint a Committee to confer with a Committee of the Institute to determine by conference if any opportunity existed for profitable co-operation. Should the League of Municipalities accept the invitation and appoint such a Committee, the matter on the part of the Institute will be in the hands of the Institute's Public Relations Committee. Your Board accepted the report of the Committee and left the matter in its hands as suggested.

General Committees.—That portion of our organization which is cared for by the Public Relations and Technical Committees has, during the year, demonstrated its efficiency as will be seen by the proceedings to follow, and in the opinion of your Directors should be further developed as occasion may warrant and demand.

Responsibility for Papers.—Your Board, at its meeting of October 20th, passed the following resolution:

All papers presented to the Institute at its conventions by individual members shall be headed by the statement that the Institute, as a body, is not responsible for the opinions and statements of fact in the papers or discussion thereof.

Papers and Reports Approved.—The following papers, general reports and special reports of the Sub-Committees of the Technical Committee, in some cases amended, have been approved for reading at this meeting.

List of Papers.

"High Pressure Gas Distribution," by Mr. Jacob D. von Maur, St. Louis, Mo.

"Benzol Enrichment," by Mr. E. H. Earnshaw, Newark, N. J.

"Some Further Remarks on the Photometry of Gas," by Mr. Charles O. Bond, Philadelphia.

"The Physical Theory of Coal Carbonization," by Mr. W. H. Fulweiler, Philadelphia.

"Vertical Retorts and Other Systems of Coal Carbonization," by Mr. J. H. Taussig, Philadelphia.

"Modern Wrought Gas Pipe," by Mr. Frank N. Speller, Pittsburgh.

"Report of Progress on Dipping Meters in Philadelphia," by Mr W. A. Castor, Philadelphia.

"Holder Cup and Tank Heating, by Mr. C. J. Ramsburg, Philadelphia.

"Better Gas Illumination," by Mr. Thomas J. Litle, Gloucester, N. J.

General Reports.

Public Relations Committee, Mr. E. G. Cowdery, Chicago, Chairman.

Technical Committee, Mr. W. H. Gartley, Philadelphia, Chairman.

Board of Revision of the Question Box on the Manufacture of Gas, Mr. J. D. Shattuck, Chester, Pa., Chairman.

"Wrinkles," Mr. M. R. Bump, Editor, New York.

Accidents, Details by Members.

Special Reports of the Sub-Committee of the Technical Committee.

Committee on Calorimetry, Mr. R. B. Brown, Milwaukee, Chairman.

Committee on Uniform System of Accounting, Mr. R. A. Carter, New York, Chairman.

Committee on Pipe Standards, Mr. A. S. Miller, Baltimore, Chairman.

Committee on Electrolysis, Mr. A. G. Glasgow, London, Chairman.

Committee on Unit of Light, Mr. W. H. Gartley, Philadelphia, Chairman.

Bureau of Information, Mr. W. A. Baehr, St. Louis, Chairman.

Proceedings of International Committee for Standardization of Threads for Gas Appliances, Mr. A. G. Glasgow, London, Delegate.

Then follows the membership report (list revised to October 1, 1908), which showed the membership to consist of these members in the stated classes: Active, 984; Associate, 232; Junior, 92 a total of 1,308. During the year 2 deaths occurred: Mr. H. W. Sexton, Anniston, Ala., and Mr. B. F. Ellison.

The Secretary's reports were followed by the Treasurer's statements, which showed comfortable balances to credit account.

RECOMMENDATIONS.

Special Reports of the Sub-Committee of the Technical Committee.—The reports of the Committees on Calorimetry, Uniform System of Accounting, Pipe Standards, Electrolysis and Unit of Light, the Report of the Bureau of Information, the Report of the Proceedings of International Committee for Standardization of Threads for Gas Appliances, the Report of the Board of Revision of the Question Box and Wrinkles, have been accepted by the Technical Committee and presented by this Committee to the Board of Directors, together with the resolution, in each case giving the necessary effect to the respective reports. These resolutions will be presented by the Secretary in the proper order. The Board recommends the acceptance of all the above reports and the passage of the respective resolutions by the Institute.

Trustees Gas Educational Fund.—The annual report of the Trustees Gas Educational Fund will be presented at this meeting to the Institute as one of the subscribers to the fund.

The Board recommends that the Institute continue its annual subscription of $350 to the Trustees Gas Educational Fund. The Board has also decided that in the forthcoming volume of the "Proceedings" there be printed such of the questions and answers as have not been already printed in the first two volumes of the Institute "Proceedings."

Appliance and Apparatus Exhibition.—In view of the action taken this year, with reference to the Exhibition of Appliances and Apparatus, as previously referred to, the Board recommends that the question of an exhibition at the next annual meeting of the Institute be left for the Directors to decide when in possession of the facts as to the outcome of the joint exhibition to be held in Chicago next December.

Definition of Heating Value.—The Directors having appointed a special committee to consider the question of definition of heating value, and having adopted the report of that committee, now recommend this definition for final adoption by the Institute:

The heating value of a gas is the total heating effect produced by the complete combustion of the gas with air of the same temperature, the products of combustion being brought to the initial temperature of the gas and air. We recommend that the heating value be stated in terms of British thermal units per cubic foot.

Conservation League of America.—A communication being laid before the Board from the Conservation League of America, asking for the support of the Institute of the work undertaken by the League, the Board recommends that the Institute express its sympathy with the League in its efforts to conserve the national resources of the nation, and that a committee of the Institute, consisting of the President and two Vice-Presidents, be appointed to confer with the officers of the League as to the question of the Institute cooperating in this work.

Proposed Amendments to Constitution.—The Board recommends the following amendments to the Constitution:

Section 53.—On Publication Committee, strike out the words "The President, the Vice-Presidents and the Chairmen of the Two General Committees," and substitute therefor the words "The President, the Junior Past-President, the First Vice-President, the Junior Past-Chairmen of the two General Committees, and the Secretary." The purpose of this proposed amendment is to place upon those responsible for the work, covered by the proceedings, the duty in part of supervising the publication of the reports on that work.

Section 48.—After the words "All questions," insert the words "Except as otherwise provided in Sections 9, 20, 28, 49 and 57." This addition is proposed as a necessary qualificatton in view of the provisions of the sections referred to.

Section 37.—Strike out the word "or" in the fourth line and substitute the word "and," so as to read "pay all bills approved by the President *and* a member of the Finance Committee." This is proposed for the purpose of having an agreement with By-Law No. 19, which calls for approval of bills by the President *and* a member of the Finance Committee.

Section 31.—After the words "Active Members," on the 5th line, insert the words "and Directors." This is proposed to make it plain that the Nominating Committee is to recommend a full ticket, distinguishing Directors from Officers, as is done in Section 27.

All of which is respectfully submitted for the Board of Directors.

ALEX. C. HUMPHREYS, President.
JAMES W. DUNBAR, Secretary and Treasurer.

Discussion.

The President—You have heard the report of the Directors. What is your pleasure? I suggest that it be accepted and ordered printed as usual, and that then we proceed to take up the recommendations for action. [On motion of Mr. Baehr, this was acceded to.] Almost all the recommendations can be taken up by open vote. The first recommends the acceptance of the above report and the passage of the respective resolutions by the Institute, namely, as to the special reports of the sub-committees of the Technical Committee. We will, however, let that rest as to the special acceptances, as they can come up in connection with each subject as brought before the Institute. The next recommendation is as to the subscription to the Gas Educational Trustees of $350. It will need a special resolution from the Institute to approve that subscription. [On motion, the subscription was approved.] The Board recommends that the question of exhibition at the next meeting of the Institute be left to the Directors to decide when in possession of the facts as to the outcome of the joint exhibition to be held in Chicago next December. A motion to approve that recommendation of the Board of Directors is in order. [Adopted, on motion of Mr. Forstall.] You have heard the recommendation as to definition of heating value of the Committee, approved by the Directors, and now referred to the Institute for final adoption. Do you wish to have the definition re-read?

Mr. McDonald, of Louisville, Ky.—I suggest that it be re-read.

The President—(Reading.) "The heating value of a gas is the total heating effect produced by the complete combustion of the gas with air of the same temperature, the products of combustion being brought to the initial temperature of the gas and air. We recommend that the heating value be stated in terms of British Thermal Units per cubic foot."

Mr. Graf—I should like to inquire, Mr. Chairman, whether the idea is that we do away with the terms net and gross?

The President—I will ask the Committee to report on that.

Mr. Clark—The Committee understand that the language they have used describes the total heating value of gas. The Committee do not recognize net and gross, but if there is any net and gross, then this is gross.

The President—I would state also for Mr. Graf's information that I think this will be made clear in the further proceedings of the Institute.

Mr. Morton—Mr. Chairman, it seems to me there is a question as to the standard temperature. In the gas business we always assume the standard temperature at 60°, in Europe it is 32°, while in other professions they use 62°. Now we may take a cubic foot of gas at any one of the three temperatures. Then there is another question comes up; that is, we deliver our gas in various ways. The people in the outskirts of a district may get dry gas, while people near the mains will get it charged with water. It seems this ought at least to be considered.

Mr. McDonald—I move that the definition be amended so as to say that the air and gas shall be at 60° temperature. That does away with the question as to whether or not the vapor produced by combustion will be condensed. If the definition only says that the air and gas shall be at the same temperature, they might be at a temperature of 300° F., and none of the vapor condense, and there will be quite a difference between the net and the gross.

Mr. Norris—Would there be any objection to adding to that last sentence of the definition that the cubic foot be at 60° F., and 30 inches of mercury.

Mr. Clark—I see no objection to it, but I am a little afraid to accept any suggestion of change on the spur of the moment. This was worked out pretty carefully and a long time given to it, and one of the gentlemen who spoke on the point had a hand in the preparation of the definition. I would suggest, if the Institute is not satisfied with that definition, it go back to the Committee. This is a vastly important matter. I do not think we ought to attempt to define the heating value of gas on this floor.

Mr. McDonald—I move that it be referred back to the Committee with a request to report again at this meeting of the Institute. [Seconded.]

Mr. Clark—If it is to come back to the Committee for report at this meeting of the Institute we want to know what modification this Institute expects. We must know, though it may be that the Committee will stand on its definition—as it has a right to do—and put it up to the Institute to adopt or not as it chooses; but what is the use of our going over it again—to come back here to satisfy a want that we know exists, but of which we have no definition? This Institute should tell us in what direction they would like to have this definition changed when they put it back to us.

Mr. Russell—It seems the definition as given is correct. The question for the Institute to determine is what is the cubic foot of gas. I do not think it is necessary to refer to the old definition of heating value, but rather we should submit what is a cubic foot of gas.

Mr. McDonald—There is no ambiguity as to what is the cubic foot of gas. Everybody understands that to be a cubic foot at 60° temperature and 30 inches of mercury; but when you say that the gas and the air shall be at the same temperature—unless you say what that temperature is—there will be a very decided difference in the heating value produced, because at temperatures above 212° the vapor will not be condensed, and at a temperature of 60° the vapor will be condensed. The only object is to get a definition which cannot be misunderstood. At present it seems to me there is ambiguity in the definition proposed by the Committee, and it is to remove that ambiguity that I moved its reference back to the Committee.

The President—We have a very heavy programme before us. I entirely agree with Mr. Clark that this is no place or time to take up a matter of this importance. It has to be very carefully drawn, to give the exact meaning or expression of the intended meaning. I think it ought to be referred back to the Committee, and I would ask if Mr. Clark has not now sufficient information, as to what is in the mind of the members, to guide him in considering the questions that have been raised?

Mr. Clark—I think that the Committee can now come back with a definition. It may be the same definition, but if it is, it will be accompanied by an explanation that will cover the point of objection. I think we have all the information we want. Mr. Doherty is here, he is the only other member of the Committee present so far as I know.

Mr. Morehead—Would it not be well to incorporate in there just what the British Thermal Unit is? It says it shall be the "British Thermal Unit," but now if you give these directions, you would have to look up another book to find out what the British Thermal Unit is. The definition is rather short and I should like to suggest that that be put in. Then we don't have to go back to some other reference book to see what it is. The definition would then be complete in itself.

Mr. Doherty—I do not believe it possible for the Committee to accompany this report with a dictionary. Ordinances may specify what shall constitute a cubic foot of gas, because you can assume a cubic foot of gas shall be at zero Centigrade and 760 millimeters of mercury or at 60° F. and 30 inches of mercury. The only difference, I think, is simply that between 32° and 60°, a difference of 28° on the Fahrenheit scale. The lower the temperature at which the measurement is made the higher will be the apparent heating value of the gas. We were trying to get a concise definition, which, as far as we know to-day, does not exist, on the record, and we wanted to relieve it as far as possible of all other matters not strictly related to the heating value of gas. Now when we start to define what a British Thermal Unit is, or when we start to define what a cubic foot of gas is, we may run counter to other definitions, and it is not within the province of this Committee to define either one.

Mr. Doty—I suggest that the Committee may be willing to announce the time and place of a hearing on the various objections or additions that may be desired to be presented to the Committee. It will save the Institute's time if the matter is referred back to the Committee and a hearing given.

Mr. Clark—I think that an excellent idea. I will consult with Mr. Doherty and Mr. Prichard, if the latter is in the room, he being also a member of the Committee, and we will try to arrange a time and place for hearing.

The President—Hearings are very much in order at present, so I think it is a good suggestion.

Mr. Cobb—I am told that the Gas Power Section of the American Society of Mechanical Engineers at present are considering this very thing and it seems to me that it might be well, when the matter is referred back to the Committee, that they should co-operate with the Society of Mechanical Engineers, in order that the definition accepted by both Societies shall be uniform.

The President—The motion is to refer this back to the Committee for them to report at this meeting—not at this session of this meeting. That is the motion.

Mr. Searle—I believe Mr. Doherty is President of that Society, so he is qualified to act on both Committees.

The President—All in favor of the motion will say "aye." It is carried and referred back to the Committee for report again at this meeting, if possible. The next recommendation is in regard to the Conservation League of America. I suppose all you men know what they have been doing in Washington in that regard. The body is headed by our President, with two would-be Presidents associated with him. The recommendation is that we express our sympathy with this movement and that a committee of the Institute, consisting of the President and two Vice-Presidents, be appointed to confer with the officers of the League as to the question of the Institute co-operating in this work. The recommendation was that we should pass a certain resolution which was offered to us to pass. Are you ready for the question of adoption? [Adopted.] We now come to the proposed amendments to the Constitution and that business will have to be attended to through a ballot. According to By-Law 13, it is the duty of the President to appoint three tellers of election. That, of course, primarily refers to election for officers, but we might as well have these same men serve for any ballot that may have to be taken, and I will appoint that Committee of Tellers and ask them to serve if a ballot is to be taken in full form. I appoint as tellers of election for this meeting Messrs. A. E. Forstall, C. A. Learned and C. L. Day. The recommendations as to amendments to the Constitution, I presume, I had better place before you again. The first is, on Section 53, to strike out "the President, the Vice-Presidents and the Chairmen of the two general committees as a Publication Committee," and to substitute therefor "the President, the Junior Past President, the First Vice-President, the Junior Past Chairmen of the two general committees and the Secretary." The purpose of this proposed amendment is to place upon those responsible for the work covered by the "Proceedings," the duty in part, of supervising the publication of the reports on that work. Are there any objections to the passage of this amendment to the Constitution? If there are, a single objection rules it out of order. Otherwise the ballot can be taken by requesting the Secretary to deposit one ballot to express the will of the Institute. Are there any objections? Will someone make a motion to so instruct the Secretary?

On motion of Mr. A. S. Miller the Secretary was instructed to cast one ballot for this amendment, and Mr. Dunbar subseqnently said: Mr. President, in accordance with the unanimous vote of the members here assembled, I cast a ballot in favor of the proposed amendment to the Constitution.

Mr. Forstall—As Chairman of the Board of Tellers I report that the ballot of the Secretary has been received in favor of the adoption of the amendment as read.

The President—Next, Section 48. If you have not the Section in mind, I would remind you that it states that all questions can be decided by open voting; the proposition is to insert after the words, "all questions," the words, "except as otherwise provided in Sections 9, 20, 28, 49 and 57." This addition is proposed as a necessary qualification in view of the provisions of the sections referred to. Are there any objections to the passage of that amendment? If not, a motion will be in order in the same form. A single objection rules it out of order.

On motion of Mr. Doherty the Secretary was instructed to cast a favorable ballot, and he subsequently so reported.

The President—Section 37. Strike out the word "or" in the fourth line and substitute the word "and." This is simply to make the provision in the Constitution agree with the provision in the By-Laws, which stipulates that bills shall be paid upon the approval of both the President and a member of the Finance Committee. That is all that is for. What do you wish to do with it? [Action similar to that recorded in the above noted cases was then taken in respect to the rest of the amendments reported.

(To be Continued.)

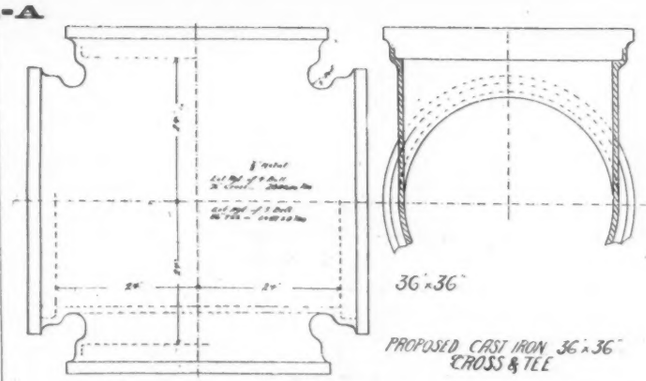
[Continued from Page 141.]

Report of Progress of the Sub-Committee on Pipe Standards, American Gas Institute.

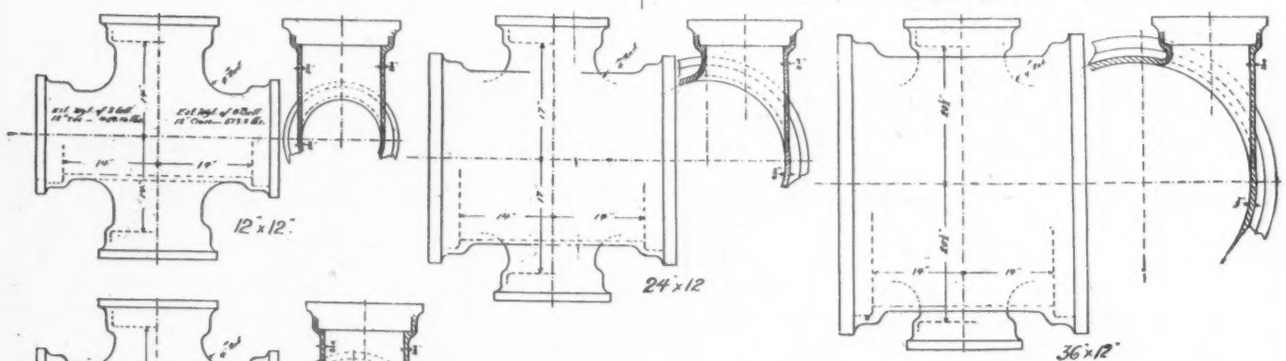
[Submitted to the Third Annual Meeting, American Gas Institute.]

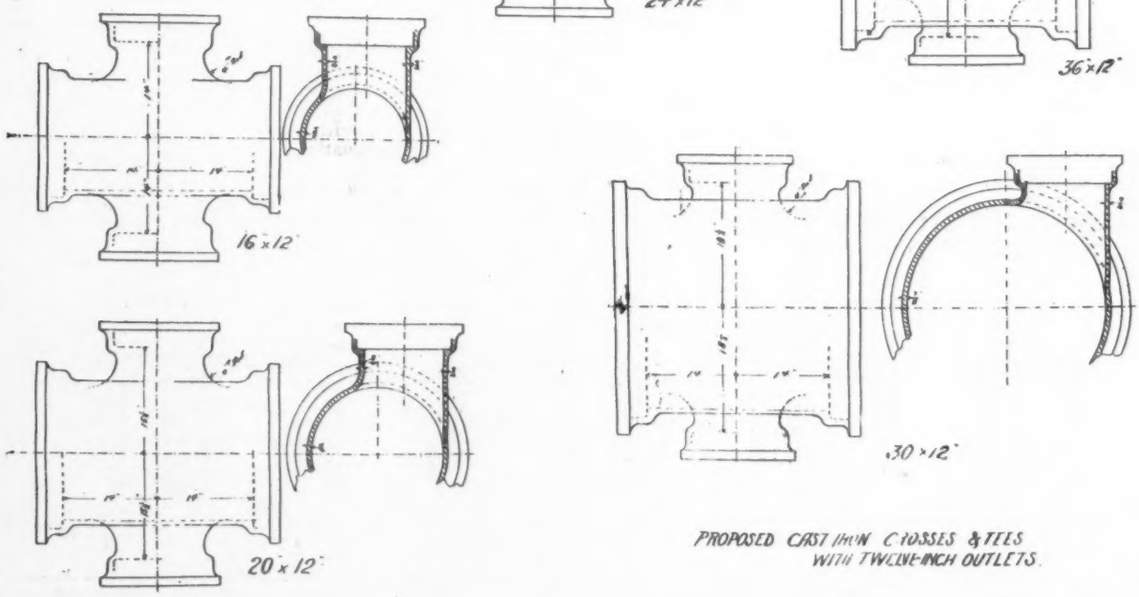
In order will be found another installment of the illustrations going with the text of the above report. They are as follows:

Proposed Cast Iron Crosses and Tees, with 12-inch outlets.
" " Crosses and Tees, with 16-inch outlets
" " Crosses and Tees, with 20-inch outlets.
" " Crosses and Tees, with 24-inch outlets.
" " Cross and Tee, 36-inch by 36-inch.
" " Plugs.
" " "S" Bends.
" " Reducers.
" " Solid Sleeves.

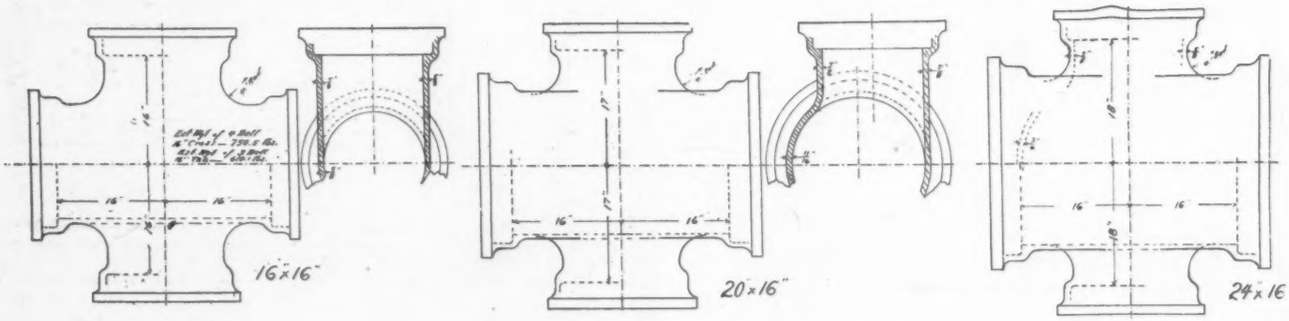


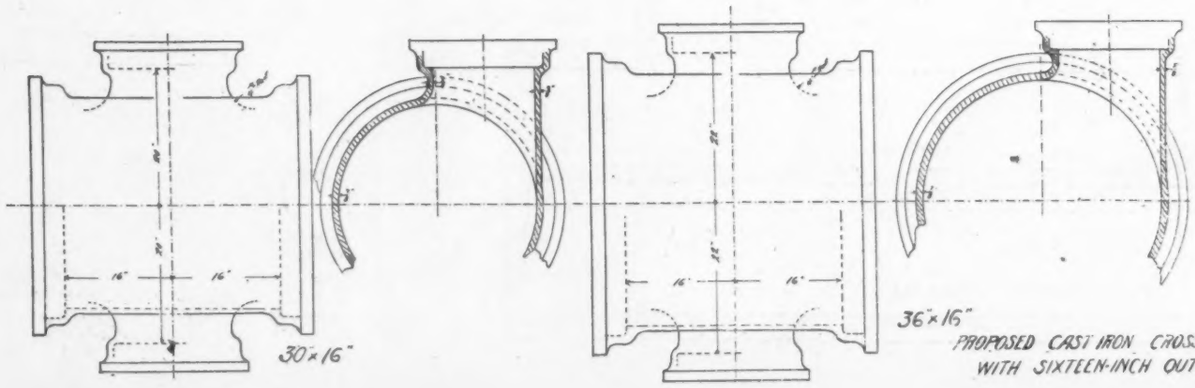
PROPOSED CAST IRON 36"x36" CROSS & TEE





PROPOSED CAST IRON CROSSES & TEES WITH TWELVE-INCH OUTLETS.





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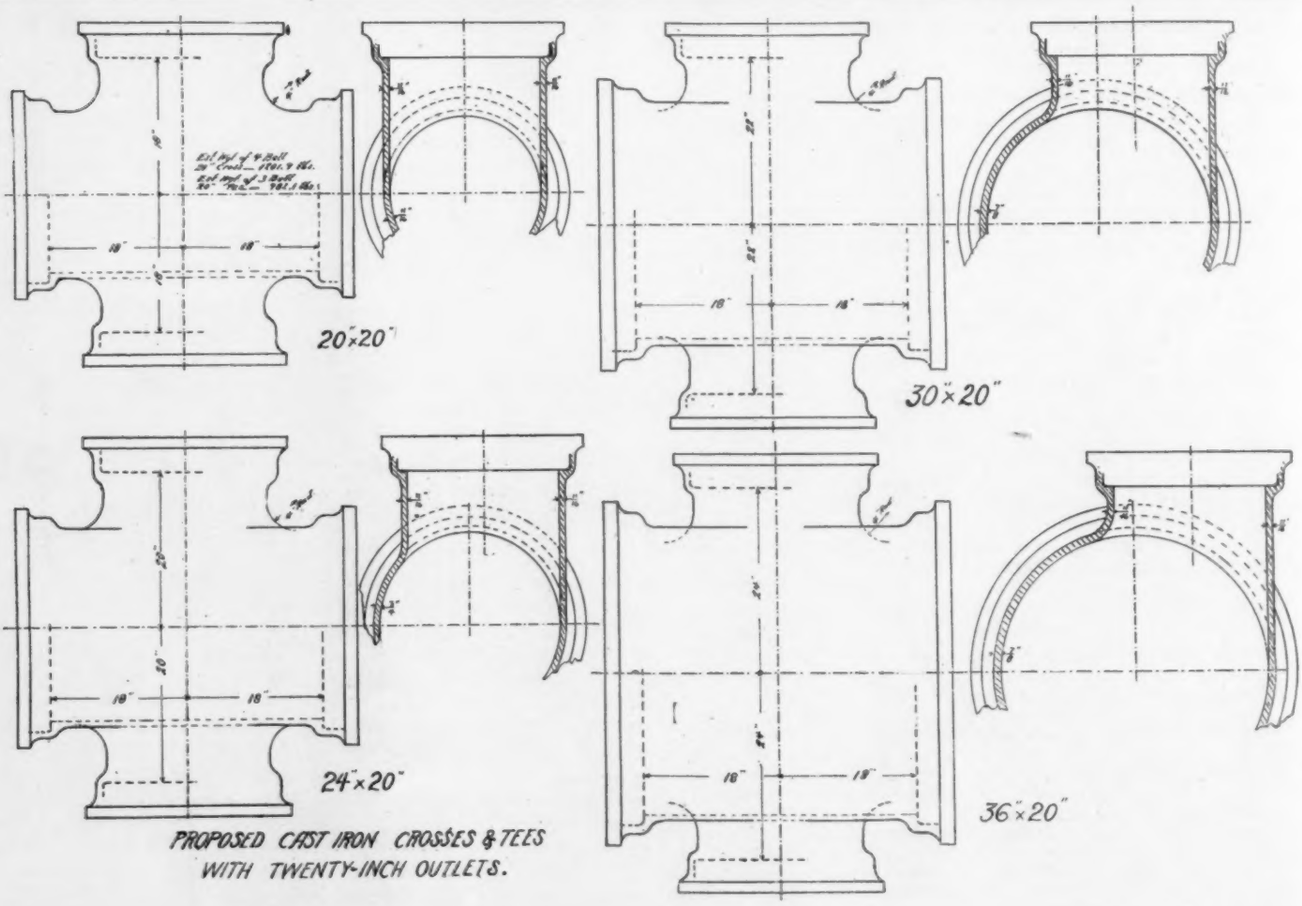

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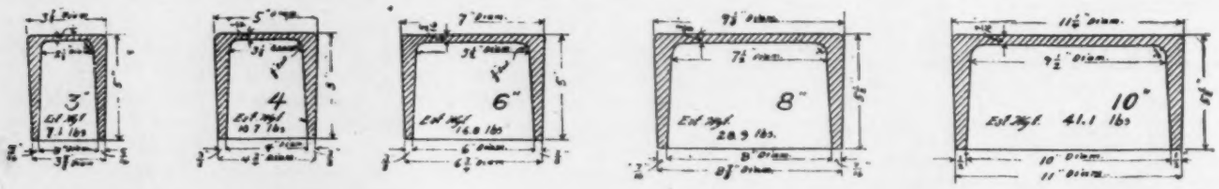
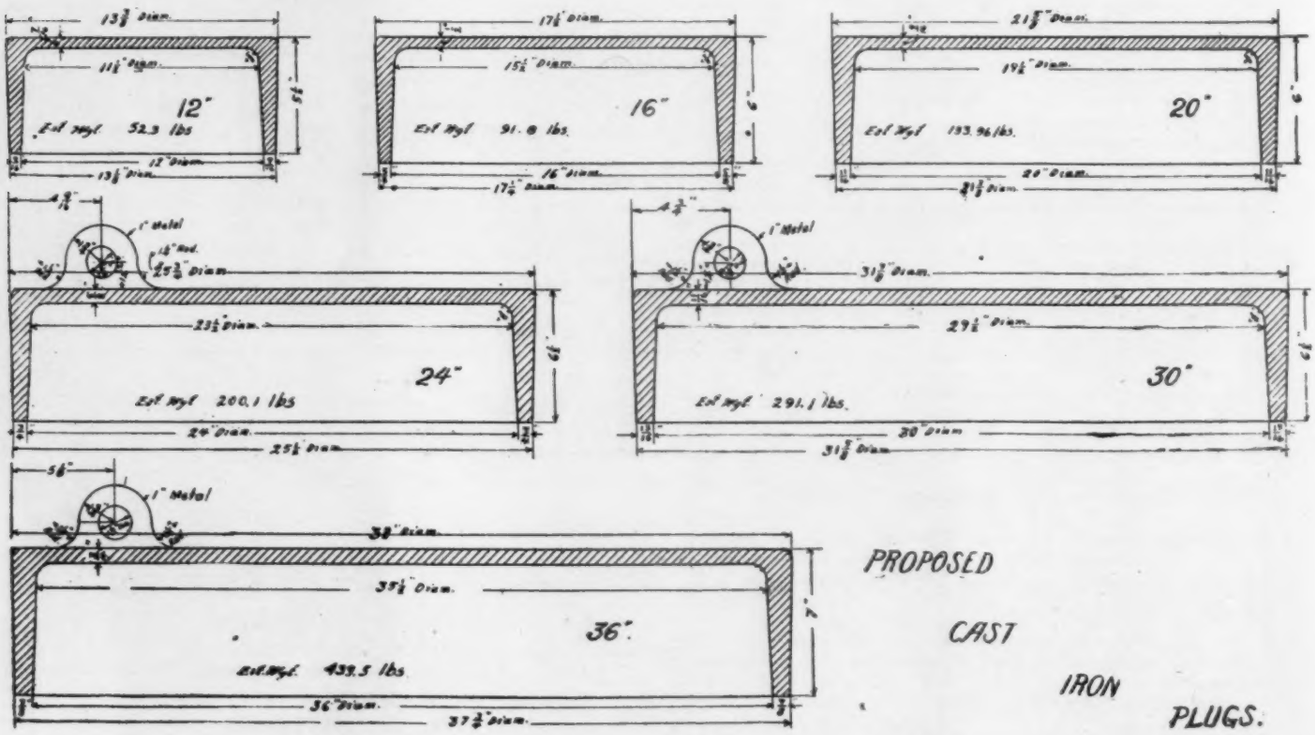
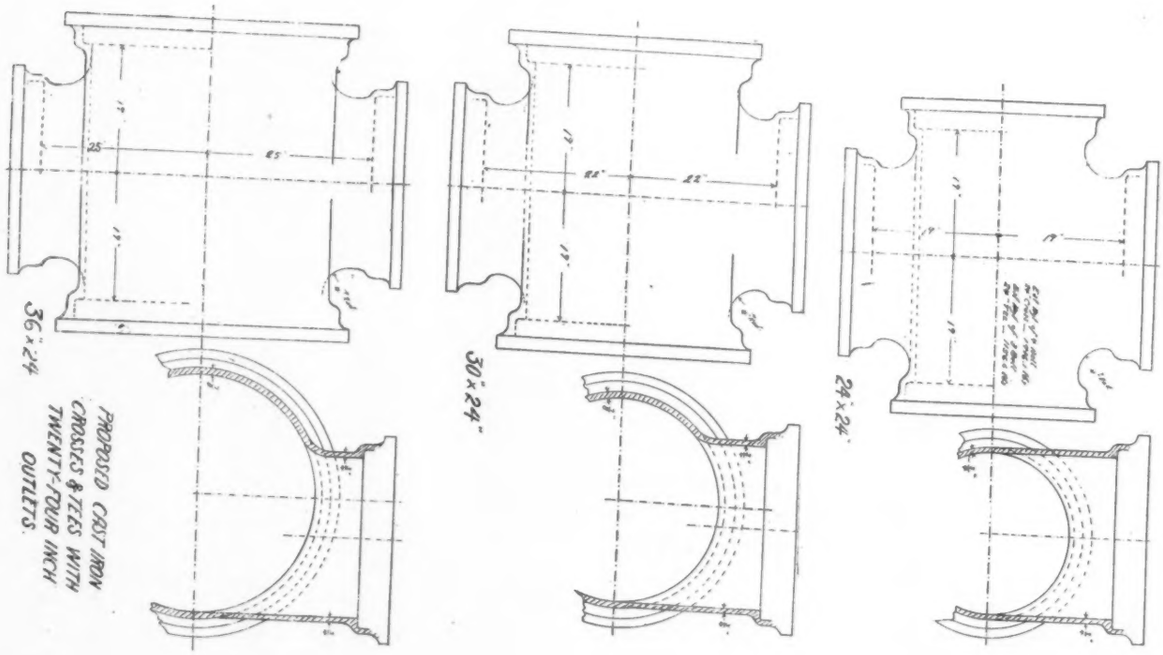




PROPOSED CAST IRON PLUGS.



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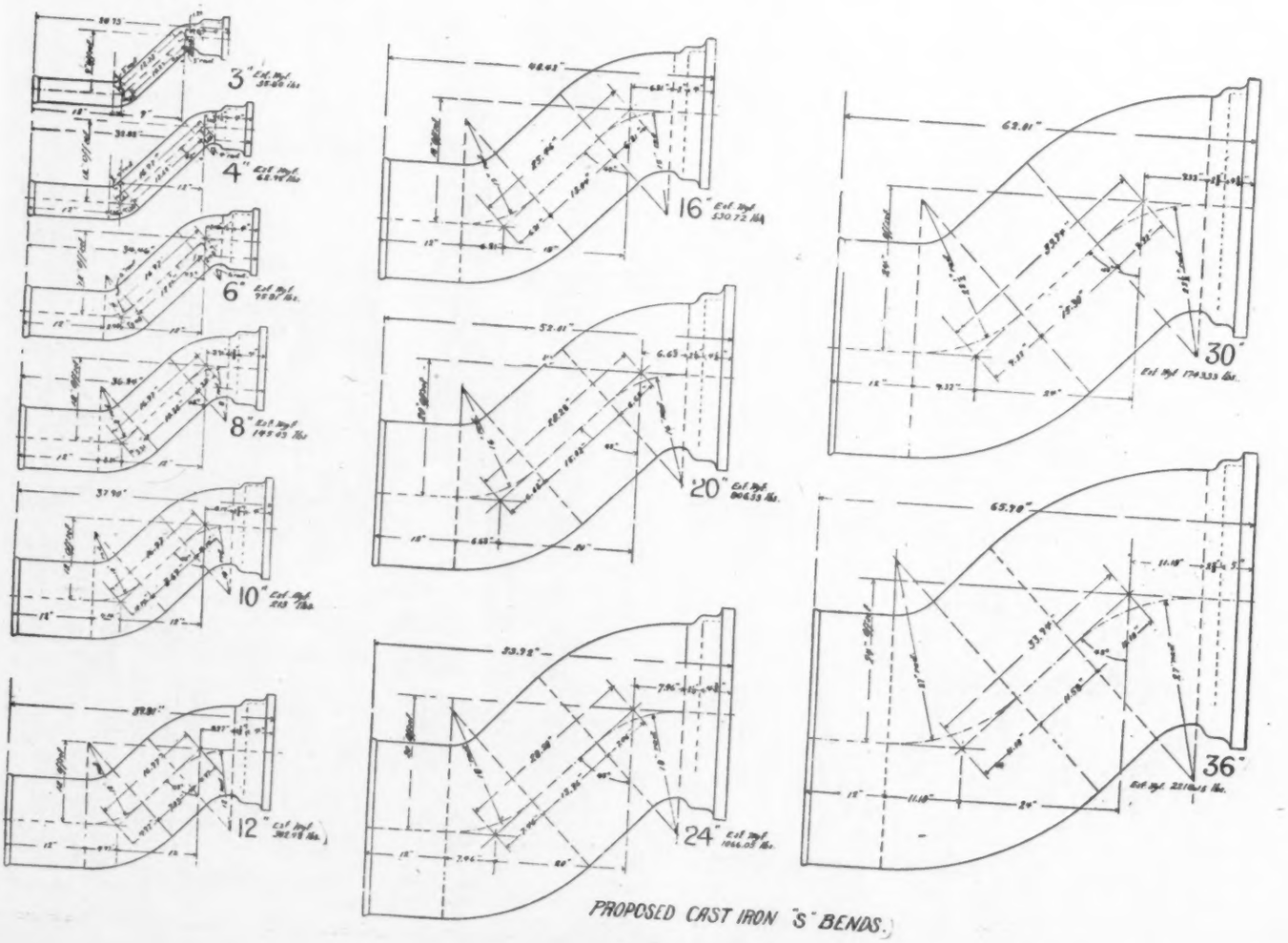
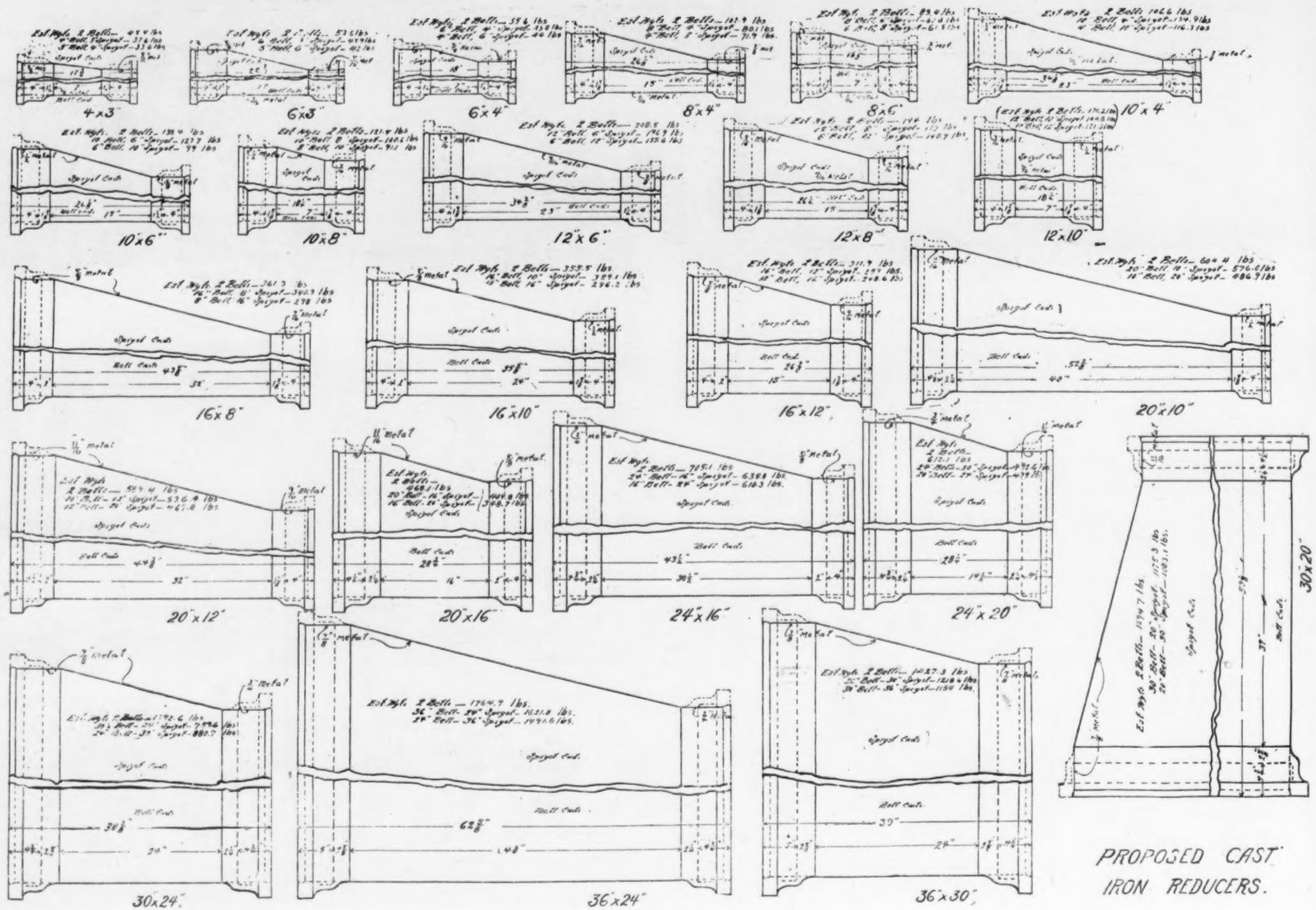


PROPOSED CAST IRON "S" BENDS.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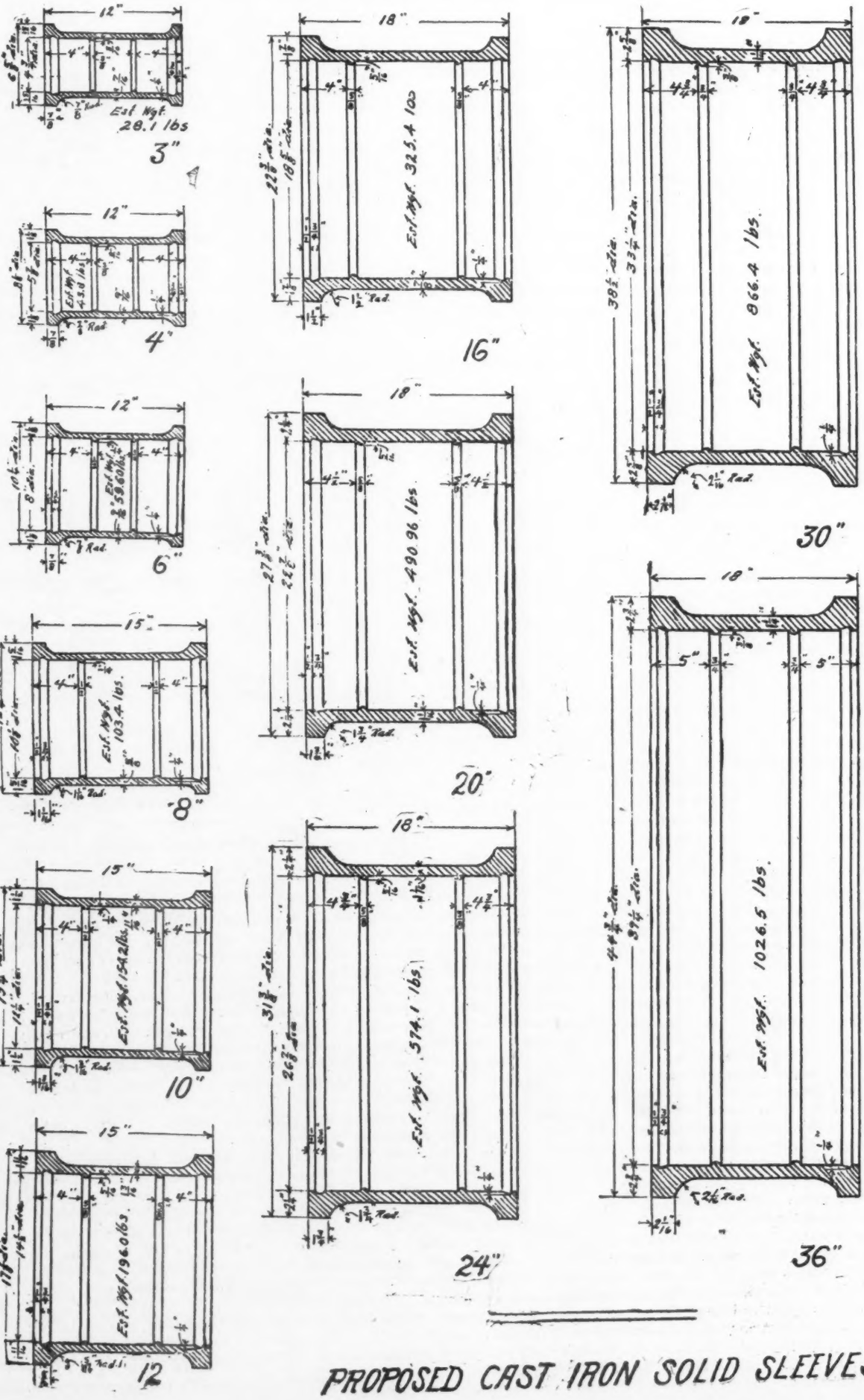
PROPOSED CAST IRON REDUCERS.



PROPOSED CAST IRON SOLID SLEEVES.

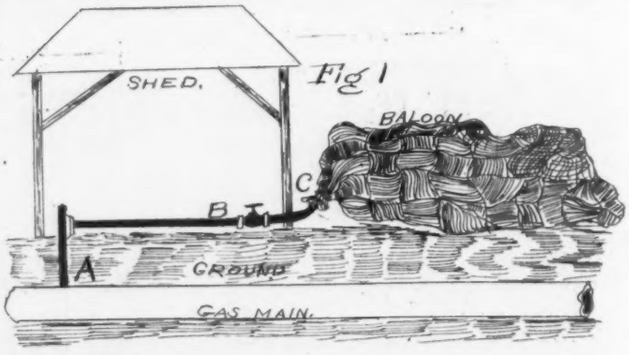
Filling Gas Bags Serially.

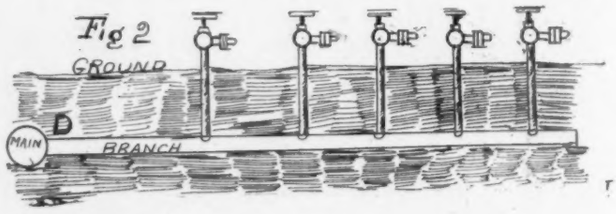
By "Engineer."

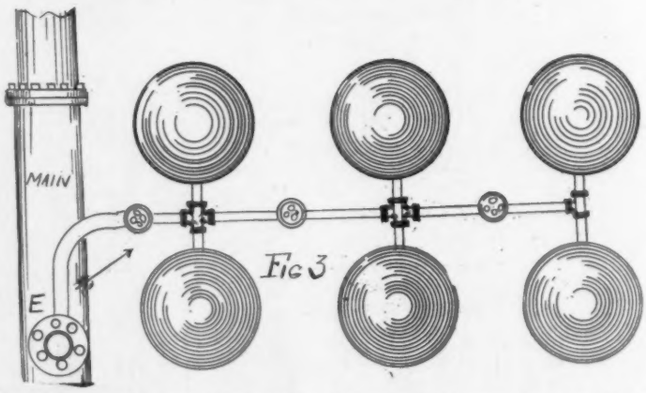
The interest in coal gas balloons continues to develop, the main reasons therefor being the very active movements in "air-traffic" during the past year. Formerly gas companies were called upon to fill an occasional bag of gas for a lone balloonist to exhibit his parachute act, or to demonstrate some ascension. The fair and the circus crowds were increased in size, and interest added to the show by 1-man or 1-woman balloon feats. Recently, however, orders have been received by certain gas companies for the filling of as many as 30 balloons at a time, requiring something like 2,000,000 cubic feet of gas—such an order was given to a gas company near the grounds of the Hurlingham Club of England this summer. Similar orders of smaller proportions have been suddenly presented at the offices of various gas companies, at unexpected times, in the United States. Furthermore, the racing balloonists oftentimes put a restriction on the time for filling the bags. In the good, old times it was only necessary to connect with the nearest gas main and fill the single gas bag at leisure, and often a whole day was devoted to the process; but in this age of races and competition we often have a number of balloons to be filled at one time, or serially, and the work must be done quickly. Often considerable volumes of gas are needed within a limited time to fill the contract, which has been made beforehand, for the gas supply.

At this time we will devote some space to describing a method of filling gas bags serially; that is, when there is more than one bag to fill. As before related, it was the practice to give up everything for the one balloon bag in process of being filled. Commonly, a standpipe was inserted in the house gas main, as at *A*, Fig. 1, at the fair grounds, the circus lot, or wherever the balloon was to go up. Sometimes a protecting roofing was put up and kept there for other ascensions. A pipe would be placed along the top of the ground, properly furnished with a check valve, like *B*. This pipe extended forward to the point where the outlet could be fitted into the receiving neck of the gas bag, as at *C*, where the proper connection was made and the gas turned on. With an abundance of time available, and only one bag to fill, there was not much trouble in getting things into order. But all this has changed in recent years. Instead of one bag there are a dozen or perhaps 30 bags to be filled, all at the same time or nearly so. Besides, instead of the moderate-sized gas bag for carrying up one or more persons, the present bag has to be large enough to carry a posse of newspaper men, astronomers, scientific men, instruments, etc. Usually there are four persons in the party, sometimes five or six, all of which weight calls for more gas. Consequently the gas company gets a shock over the wires occasionally, asking estimates on the cost of filling a certain number of balloons on a certain day within a certain number of hours. The sizes of the balloons are sometimes given and sometimes not, but it can be figured upon that they range from 8,000 to 75,000 cubic feet of gas. There is quite a good margin in the two figures given, but this range of sizes exists at present. The average sizes range from 20,000 to 40,000 cubic feet of gas. The 8,000 sizes are too small for general use, and the sizes about 40,000 cubic feet of gas are unwieldy for common service. So when the order comes for filling certain balloons, it can be assumed, as a rule, that they are about 30,000 cubic feet capacity. To get out gas fast enough to fill a balloon of this size, you look for a good sized gas main. A 12-inch main will convey quite a lot of gas for balloon filling purposes. Although there may be a series of sockets, as in Fig. 2, if the pressure is fair considerable gas can be depended upon. Hence some of the gas furnishing companies have put in serial arrangements of piping, as shown in this sectional diagram. By alternating the balloons, on either side of the pipe line, it is possible to fill a series of 6 balloons at one time. The street main is cut into for the branch, as at *D*, and the branch is in turn tapped at the intervals illustrated by the 6 standpipes. Each pipe is furnished with the necessary stop valve.

Fig. 3 illustrates the disposition of a 6-balloon filling combination. It was necessary that 6 balloons be filled so that they be started out in a race at 4-minute intervals. A large main was tapped in the street with the branch as at *E;* this branch was in turn furnished with the pieces of single pipe extending outward like arms, with the necessary valves at the terminus of the arms. Hence the 6 gas bags could be fixed in position and all 6 filled together. Then the releasing was done at the intervals named. Germany has made advanced progress in dirigible balloons of late. The U. S. Army has taken up the matter, and is now introducing improved schemes for the filling of the bags. France has likewise accomplished considerable along the airship line, using gas bags for supporting the structure in mid-air. The United States is fast awakening to the needs of balloonists, and no doubt we will easily keep pace with other nations.







Making a Market for Coke.

[Prepared for the Third Annual Meeting of the National Commercial Gas Association, by Mr. R. A. Field,[1] Rome, N. Y.]

In successfully marketing coke by modern methods it matters little whether the first aim is to sell something that has not been sold locally before, or whether the object is to sell more of a commodity which has been sold to some extent, but at too low a price

In either event, the campaign straightens itself away into the fundamental proposition of educating the prospective buyer into first believing that he can use your product at all, and finally convincing him that he not only can use it but that he is losing money, sacrificing comfort and generally holding himself aloof from reasonable effort to avail himself of an opportunity to benefit himself in case he does not make a serious effort to find out whether you are really delivering the goods or merely amusing yourself by handing out a more or less convincing brand of hot air.

One of the first things is to get all employees of the company together, in regular meetings, and lecture. Talk on or practically demonstrate the thing, until every one of them has caught the fever, and continue this until everyone is burning coke and getting results. If there are 20 of them, you have 20 brains filling 20 mouths with reasons why everyone they get a chance to talk to should use genuine gas coke. This beats a 1-man game to death, even though every one of the 20 may not be fully equipped to answer every argument as glibly as you could yourself.

First, know the thing you wish to sell from beginning to end, and you can confidently count on the earnest assistance of every employee, to a man, if your preparatory course has been properly sup-

1. Owing to the absence of Mr. Field the paper was read by Mr. C. N. Stannard.

plied with energy enough to ginger up the force. When this much has been accomplished the very best of foundations for future operations has been laid, and that trait in human nature which makes a man want to impart what he knows, and let some friend or relative in on the ground floor, can be counted on to act like an endless chain, and your soliciting force soon becomes an army of educators. At this point the thing can be made to go on gathering momentum, or it can be practically killed, and at no other time in the whole campaign does it depend so entirely on the one man who is acting as the mainspring of the movement.

If it is allowed to drift, many are going to order ½ ton of coke, try it in a half-hearted way, fail to get results because the vast majority of people are comparative failures anyway, and there you have the fellow who tried it and found it no good, doing more harm than you can undo with a ton of printer's ink or a mile of 8-sheet posters.

Every purchaser must be followed up, and the smaller the initial order the more need of seeing that he is taught to use his first order properly. If he orders a ton he has an investment large enough to make him persist in using it, and before it is gone he may learn how to regulate his firing and dampers until he gets good working results, where, if he has but a few bushels, there is small incentive to use his head to get him out of his difficulties.

There is no other advertiser like a satisfied consumer, and when you have followed him up until he becomes a repeater, it is only a matter of furnishing a uniform product, training the office force to respect his feelings and the man on the wagon to respect his property.

It is like throwing money away to go in for publicity matter and the putting out of snappy newspaper work, posters, street car cards and a professional solicitor if the first man who gets interested asks an employee, "How about this coke you people are raising such a fuss about?" is to be met with, "O, I dunno' nothin' about it; one of the old man's new ideas, I guess." If the thing has not merit enough to warrant trying it out on the dog the public is not likely to take to it with any great degree of avidity, and progress is pretty sure to be slow. After every man you have is in shape to answer questions, there is plenty of time to decide on how much and what form of advertising you will go into.

A plan which has met with great success was to follow up the start outlined above with "Coke Talks," explaining the nature of coke, its manufacture, various uses, good qualities, the economies which could be and were being effected by its use, and the like. These talks were published in the daily papers, the idea being to bring out one fact each night, and to do it in one sentence containing the fewest possible words. In literature the greatest authors may be those who make their readers think, instead of doing their thinking for them; but in "ad." writing, the fellow who gets up his copy in such shape that the fact he wishes to impress reaches the hurrying, superficial reader, in predigested tabloid form, is the chap who gets results.

Such an "ad.," cleverly written, will be assimilated without effort. It finds its way into the average reader's mental storeroom and classifies and card indexes itself. Nine times out of ten it bobs up and does its work automatically the first time he is in need of the thing you have to sell. At the end of the first winter season, marked results should begin to show, and the work should be vigorously pushed in the early spring, since many people contract for their fuel supply at this time. Every furnace in town should be inspected by a competent man, one who burns coke himself and who has a practical knowledge of how the fuel should be used to get results.

A record of the make and size of the furnace, together with the number of rooms heated, should be secured at this time, and if the furnace is in any kind of shape, a card stating that the furnace has been inspected and found suitable for burning genuine gas coke should be tacked up in a conspicuous position nearby. This is the biggest business getter, where expense is considered, that we know of. We find a number of the cards are still in evidence, though tacked up 3 years ago.

If the town has a regular market day, the rural vote can be rounded up by having a man go out among those who have driven into town on such days, with a short talk and a booklet describing coke, its uses and how it's done. In a great many instances, those who came in to take out a load of coal will take out their first order of genuine gas coke. This is the best kind of business, because the farmer rarely fails to make a success of coke burning, and in consequence he is almost sure to become a regular customer. He calls for and delivers his own coke, and frequently goes into the fuel business on a small scale.

We have several we started, as outlined above, and now they contract for from 50 to 100 tons annually. They draw it when other work is slack and always get it out of the way during the summer months when ordinarily it would be piling up in the yard.

This selling plan was worked out with the idea of getting the maximum net results. That is, business that would show consistent repeat orders rather than business which would show large immediate results, with a large percentage of backsliders. Once the thing is fairly started, coke booklets, street car cards, exhibits at local fairs and donations of coke whenever you are forced to donate something, all serve to keep the thing going; but the one thing that really counts is to know that every purchaser makes an unqualified success of burning your product. This means a whole lot of careful follow-up work, requiring considerable patient explaining of things which are simple enough to you, but which the other fellow fails to grasp.

One energetic, competent young man can look after all this work in a town of 15,000 and have time enough to keep up his "Progress Reports" and do some other things; but he won't do it unless he is thoroughly systematic and fully understands the art of making a good game of the work and is able to grasp the fact that the man in trouble ceases to trouble you and becomes your best friend just as soon as you realize that he is an opportunity.

Discussion.

Mr. H. A. Usey—We have had in Milwaukee all sorts of experience in disposing of our output of coke. A principal feature of our coke campaign was to bring out the fact that we screened our coke, so that it was all clean, of a uniform size; that it was all coke. We built up a large country trade by sending out coke letters. The campaign on the sale of coke throughout the city was conducted, to a large extent, on the lines mentioned in the paper. Coke orders given to us were followed up by a man who understood the burning of coke, and every customer who had not used coke before was followed up with a demonstration, and they determined whether the purchaser knew how to use coke. They gave instructions and directions and followed it up a little later with another visit, so as to make sure that coke was used in the right way. We always accompany each order from a new customer with printed instructions on how to burn coke and tack them up in the basement near the furnace. I do not know of any one thing that has made our coke more in demand than the fact that we have always screened it and it is of uniform size. Even in times when we have been unable to supply the demand that has been made upon us by country dealers, and when we have tried to pass the order elsewhere, the reply would come back to us that the Milwaukee coke was best, because it ran more uniform as to size and cleanness.

The Consumer.

[Prepared for the Third Annual Meeting of the National Commercial Gas Association, by Mr. C. W. HARE, Philadelphia, Pa.]

The importance of having satisfied consumers in the territory served by a gas company cannot be overestimated, and is scarcely open to discussion; but the best method to follow to secure this satisfaction is worthy of the constant thought of the gas fraternity.

In the last few years there has been a very largely increased interest on the part of the public in the affairs of public service corporations, and I believe we may reasonably expect a rather keener and more specific interest on the part of the general public in the future. If this is true may it not be wise to meet this awakened interest more than half-way, and show, through publicity campaigns and otherwise, just what we are doing for the public, and how and why we are doing it?

Had all the public service corporations taken greater pains in the past to satisfy their consumers in every reasonable particular, the demand for public service commissions would probably not have been as insistent as it has become during the past year or two, and while there are many of us who feel that it would be quite possible for a public service corporation to manage its own affairs, in perfect fairness to its stockholders and the public, without the supervision and instruction which public service commissions are empowered to give, there are others who believe that public service commissions, if wisely administered, will be of distinct benefit to the public service corporation, as well as to the individual. Whether we are or are not approaching the era when every State will have its public service commission, there is no question of the importance of bringing our service up to the highest practical standard.

Have we not perhaps been too unwilling in the past to take our consumers into our confidence, and have we not perhaps been too

willing to pass lightly over certain complaints, which, at least to the complainant, must have appeared amply justified? Absolute and painstaking frankness with the average consumer will go a long way towards overcoming his personal complaint, and will, in most instances, send him back to his constituents a strong advocate of the fairness and impartiality of that particular corporation.

There may well be certain companies in this country whose management, in their effort to rapidly develop the property, have overlooked the fact that, unless the consumer is satisfied, it will be difficult, when the critical time comes, to convince him that that particular corperation is the one best qualified to receive his report.

Has not the careful and consistent work of a management often been minimized by having the man who actually came in contact with the public not up to his job. How often has an entirely false impression of a company been established from the carelessness and incompetence of a "complaint clerk." In my opinion the "complaint desk" is one of the departments in any gas company which requires the most careful thought in the selection of its employees.

Most of our consumers who come to the office with some complaint would far rather have that complaint answered at the office, and a clear explanation given at the time, rather than be met with the statement that a man will be sent out to investigate, and after the investigation has been made, to receive a short notice stating, as in the case of a large bill, that the meter has been re-read and found to have registered correctly. If the "complaint clerk" had taken the time to show that consumer the amounts of his previous bills for similar periods, and had questioned him closely on the uses to which gas was being put in his home, he would probably have been able to convince him of the justice of the charge, and the expense of having the meter re-read or tested would have been obviated. I believe a large portion of re-reads could be done away with were "complaint clerks" to give greater attention to each individual case. I am also inclined to believe that the expense of answering complaints could, to some extent, be lessened, were the "complaint clerk" possessed of sufficient technical knowledge to discuss intelligently with the consumer the cause of his trouble.

There are, however, many instances when complaints are well justified, and we should treat the consumer making these justifiable complaints as a friend, telling him frankly that he has aided us, through his complaint, in taking measures to prevent the recurrence of that particular complaint in the future. Never hesitate to say that you are wrong, if you are, and do not endeavor to hide a fault through a series of plausible excuses. Such a line of reasoning may work once, but the individual and the company will pay for it in the end.

Any corporation to-day which makes up its mind that it will pay more attention to the qualifications of its "complaint clerks," and give considerably greater attention to the various departments which come in direct contact with the consumer, will, in my opinion, reap a golden harvest. There is a very pronounced opinion on the part of many gas men that the word "complaint" is a dangerous one to be used, and that a sign with the word "complaint" above the desk behind which your "complaint clerks" stand, should not be tolerated. They reason that, by making the "complaint desk" prominent, we emphasize the fact that we have complaints and that our service is not at all times satisfactory. They also argue that the "order desk" should be as far removed from the "complaint desk" as possible, so that prospective consumers may not gain the knowledge of the sources of complaint to which they may become heir, and that the class of consumer who complains of his large bill, solely with a view of delaying the payment thereon, may not be augmented. We, of course, in every community have a certain number of consumers who spend half their time in devising ways and means to get the best of the gas company, and a certain number of consumers who may be influenced in their decision to become consumers through the knowledge that a neighbor has had trouble with his gas supply. But I am frank to say that competent men at the "complaint desk" should go a long way towards lessening these evils and that a prospective consumer hearing an intelligent explanation of alleged trouble would be more than ever inclined to have dealings with that company. The "order desk" should be separated from the "complaint desk," if possible, but solely for the purpose of facilitating the carrying on of the work. A well organized set of canvassers in the field can also be of inestimable assistance in lessening complaints, by seeing that good service is maintained and by answering on the spot many of the minor difficulties met with by the consumer.

The service of a gas company is never at all times perfectly satisfactory, and it is quite natural that it should not be. When that time arrives it is quite probable there will be little use for gas companies on this hemisphere. Why is it not much better to take the broad ground that, strive as hard as we may, we can never become perfect and that we receive undoubted help from our consumers in our aim to reach a stage of perfection, if they will advise us promptly and at all times, when their service is not up to the mark? Taking that ground, why should we not have our "complaint desk" prominently located, with a sign stating that there is where we keep a set of trained men, ready to answer the slightest wish of our consumer. As long as we assume the attitude that we practically have no complaints, and that the consumer bringing one in is a most unusual occurrence, so long are we off the road leading to the honest cooperation of every consumer with the company.

If, on the other hand, the superintendent of works is constantly on the watch, to see that his gas is of good candle power, and the engineer of the distribution department on guard to see that the service is maintained at a high standard of efficiency, the new business man, ever ready to see that nothing but a first-class article is sold, and last, but by no means least, the "complaint clerk" ever ready to give a fair answer to a question, our company will benefit in the same proportion that the consumer is satisfied.

Being particularly interested in the new business work of the gas company, I see on all sides the pitfalls which surround the successful carrying out of that branch of the work. If our canvassers, in order to make a record, persuade a consumer to purchase an appliance for which he has really no need, or place on his premises a greater number of lights than are actually required for his work, or over-exaggerate the efficiency of an appliance, you can rest assured that that customer will find it out before long and will commence to sow seeds of discontent, which is the very thing we wish to avoid. If a consumer received discourteous treatment at the "complaint desk" he is not apt to be in a proper frame of mind to buy appliances from our canvassers.

The public service corporation should go further than seeing that its own work, when it reaches the consumer, is beyond reproach and endeavor to gain the co-operation of the independent dealers of the town in which the gas company operates, in order that they may only sell articles of proven worth, and also overcome their proclivities for over-estimating the value of a given article, or order to make a sale.

It is a well-known fact that most gas companies are annually spending large sums of money for free work to benefit their consumers, and in some instsnces so much of this work is being done that the impression already existing, that abnormally large profits are made from the gas itself, is intensified.

I believe the gas companies should do less of this work in the future, but I do not believe that if greater prominence were given to the complaint end of our business that the complaint cost would be materially increased; rather would we find a greater number of complaints answered satisfactorily at the office, thereby saving the cost of a call and a fruitless examination. Having in charge of the "complaint clerks" a man of infinite patience and good judgment, to whom all those consumers who failed of satisfaction at the hands of the clerks themselves could be referred, I believe we would rapidly overcome whatever friction might exist between the company and the consumer.

That company can consider itself lucky indeed which has in its employ, from the president down, a set of men whose time and thought are given to building up the goodwill of the community which they serve, forgetting themselves in the task.

We all know the type of individual who, as office boy, considers the importance of his position first and the work he is employed to perform second. That type has never succeeded in the past and will not succeed in the future. The sooner we all realize that, as long as we occupy even the humblest position in the employ of a public service corporation, that we are the servants of the public, and that it is essential that we secure and hold the goodwill of a community, the better off we will be. I do not feel it necessary to further emphasize the importance of all the departments of a gas company working together, nor to show how each at some time or other is able to make or mar an impression upon the community, but if we can return to our respective cities after this meeting is over with a renewed resolve to improve and perfect the various branches of our work, in so far as they deal with the consumers, I feel convinced that such an effort will be amply repaid. (To be Continued.)

Interesting Legal Opinions
RESPECTING GAS PRACTICE.

Nominal Damages Against Gas Company for Changing Meter Without Permission.

The act of some workmen in the employ of the Kings County Lighting Company, of Brooklyn, N. Y., in entering the residence of one of its patrons without permission, and exchanging the old gas meter for a new one, resulted in a judgment of $150 against the Company, in an action instituted by the consumer. The entrance and change of meter occurred on April 26, 1908, and the plaintiff moved out on May 6th following. The testimony in regard to the manner in which the men gained an entrance to the house was conflicting. The plaintiff and his wife stated that the cellar door, through which the men entered, was fastened on the inside. The men testified that, after ringing the door bell and receiving no response, they found the cellar door open and went in. The judgment against the defendant was reversed, the court being of the opinion that the plaintiff was not entitled to more than "nominal damages." "The Company had the right to change the meter," said Judge Gaynor, in his opinion, "although it was a technical trespass in going into the cellar without getting permission of the householder or complying with Section 67 of the transportation corporations law" (laws 1890, p. 1148, c. 566). Fortescue *v.* Kings County Lighting Co. New York Supreme Court, Appellate Division, Second Department; 112 N. Y., Supp. 1010.

Gas Company Not Responsible to Employee for Omissions of Foreman.

The plaintiff was in the employ of the defendant gas company, as a shoveler, and was engaged in the excavation of a ditch for the laying of a gas main in the city of Rutland, Vt. At the time of his injury the plaintiff was directed by Miles (the foreman) to go into the ditch and dig out a bell hole, and to hurry about it so that the joint could be calked before night. The walls of the ditch were not shored up, though the defendant's superintendent testified (and this was not in any way contradicted) that the defendant supplied planking and bracing timbers to protect dangerous places if any occurred. The plaintiff entered the ditch pursuant to Miles' order and began the work assigned him. While so engaged he encountered a stone in the bank, and, while digging around to remove it, the east bank caved on to him and caused the injuries sued for. After the plaintiff went into the ditch, and before the bank caved, a crack appeared in the dirt thrown up from the ditch running along parallel with the ditch, to which the calker called Miles' attention, suggesting that the bank ought to be braced to prevent caving. Miles replied in substance that it would stand long enough to get the joint calked and gave the plaintiff no warning. The bank caved along this crack. It was urged that the foreman's knowledge of this crack and the plaintiff's ignorance of it saved the case for the plaintiff, on the ground that it became the duty of the company to warn the servant of a danger known to it, but unknown to the servant. But such was held not to be the case. The danger was not in a legal sense latent. The crack was not so much the source of danger as it was the manifestation of it. But, in any view, it was in character obvious, though unseen by the plaintiff. The duty to warn is coextensive with the duty to exercise care. If it was the duty of the company to protect the plaintiff from the danger which threatened, it was its duty to warn him of the imminence of the danger indicated by the crack, otherwise not. So it comes back to the question hereinbefore discussed. However great the moral obligation resting on the foreman to warn the plaintiff, his fellow laborer, he did not, in his neglect to do so, represent the defendant, for the company's duty had been fully performed. The omission of the foreman in this behalf, like his omission to make use of the shoring, was his own and not that of his company—an omission which comes within the fellow-servant rule, that the employer is not liable to the employee for injuries resulting from the negligence of a fellow-servant. On the liability of the employer in such cases the court wrote as follows: "Among the non-delegable duties which a master owes his servant is that of providing and maintaining a reasonably safe place in which to work. But this rule does not require the master to supervise the merely executive details of the work as it goes along. These are acts of service, and are within the proper range of the servant's duties. They may be delegated to a competent coservant, and, when so delegated, negligence therein, though resulting in injury, will not support an action against the master. And it matters not whether the offending servant be a foreman, overseer, superintendent or a mere fellow workman; the result is precisely the same—the master is not legally responsible—for it is the character of the act in question which determines. So it is that when a master provides his servant with suitable materials and instrumentalities to make safe the place, and a competent foreman to use and apply them, he fully discharges his legal duty, and the negligence of the foreman in the manner in which the appliances are used, or in failing to make use of them at all, will not establish liability on the part of the master. Many cases support this rule and illustrate its application." Brown *v.* Peoples Gas Light Company; Supreme Court of Vermont. 71 Atl. Rep., 204.

Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, January 10th, 1909.

Complaints.—Municipal Trading.—A Comparison.—A Leakage of Gas.—Precautions Against Gaseous Poisoning.

Amongst the bills, claims for taxes and other blessings accorded to gas undertakings, in common with all business concerns, at this season of the year, may be instanced the annual growl from the consumers. In the late autumn, and the few weeks immediately preceding Christmas, various appliances are brought into use that have been lying idle all through the spring and summer, without any special protection from dust and damp. With the first spell of frost and snow, gas stoves and gas fires, that have not been touched for at least six months, are hurriedly put into full operation. Incandescent burners and gas fires especially resent this sort of treatment. The fire apertures, gauges, etc., are choked with dust, while rust has accumulated in flue pipes and other parts. The long suffering meter also rebels against the sudden increase of demand, which not infrequently exceeds its nominal capacity to a large extent. The result is bad light, poor heat, grumbling and bad temper. Most of the furniture, utensils and fitments in the house undergo what we in England call a "spring clean" every year, and if householders would only exercise sufficient common sense to see that their gas fitments had a "spring clean" every autumn, much of the inconvenience would be done away with, to the great relief of the consumer and to the comfort of the long suffering complaint clerks at the gas office and the outdoor staff. For it rarely happens that the truth is recognized, but the whole of the trouble is ascribed to the gas works, and the gas company are peremptorily ordered to put things right. I don't know whether people in America enjoy themselves by talking over their household and other worries, but many people here do so. Even at the merry Christmas gathering the iniquities of "those gas people" are not forgotten, with the result that someone or other boils over and writes to the papers. This is an effective way of blowing off steam, and many of the writers, having perused their utterances in print with great satisfaction, straightway forget all about them. But meanwhile the seed has been sown on productive soil. At a quiet time of the year the newspapers are never adverse to a subject that will start a popular discussion, and other letters follow, some of them emanating at no very great distance from the editorial offices. The result is that the gas works officials have to put up with a great deal of unpleasantness, and the annoyance of being blamed for defects and neglect in respect to matters that are beyond their control.

An example of this kind comes from Manchester, where the complaints received during the last financial year amounted to 21,339, about one-eighth of the total number of consumers. Of these, 9,781 were due to defective meters, 5,457 to defective fittings, 5,686 to stoppages, 193 to escapes, and 133 to damage to lamps, all causes beyond the control of the suppliers of gas. And yet there has been considerable outcry in Manchester as to the "quality" of the gas. The experience in other towns is of a similar nature. Defects in the consumers' fittings, or the natural consequences of neglect and improper usage, are all ascribed to "the gas." It is also a usual experience that a very small proportion of the complaints come from the slot meter class of customers, perhaps because the appliances and fittings were more directly under their own personal care. Any extra expense due to migratory habits is compensated for to some extent by the lower proportion of general complaints.

A writer in a Welsh newspaper publishes some useful and instructive statistics from the accounts of a gas and water undertaking, which was bought up by the local authorities some 10 years ago. He gives, side by side, a number of items from the final year of the private company's existence, and the corresponding figures for the last complete

financial year's working under the council, and the results do not tell in favor of municipal control. Although the mileage of mains has been doubled, and the consumers increased nearly sixfold, there has been no reduction in the price of gas, but there is a marked falling off in the quantity made, and especially in the quantity sold, per ton of coal carbonized. The company earned more than 10 per cent. dividend on their capital investment, but the council have not been able to clear their obligations in the way of interest on loans and contributions to sinking fund, although the same only amount to about 5 per cent. on the outlay. Notwithstanding the advantages attendant upon a more than doubled output, the council have a deficit of nearly £2,000 for the year, and this sum will have to be provided by the ratepayers of the district. It is evident that the transfer was a bad bargain for both ratepayers and gas consumers, for a company that could earn their maximum dividend in 1896 on a price of 4s. 3d. per 1,000 cubic feet would be able to do as much under the improved conditions of 1906 on a price more like 3s. 6d. The consumers would be having gas substantially cheaper, and the ratepayers would not have a deficit to pay. There are evidently some useful deductions to be gained from intelligent inspection of the Board of Trade returns, which are the authority for the above statements.

A serious explosion of gas, which occurred in a street in London some few days ago, and unfortunately resulted in two deaths, was shown at the inquest to have been brought about in a very extraordinary manner. There are two lines of mains, one for each side of the road, as usual in closely occupied districts, and at the locality in question a rider or connecting pipe was carried across the road from one main to the other. There was also a water main, in which an old standing fracture was found, from which it was evident that water had been escaping for a considerable period, as a large cavity was washed out under the roadway. Considerable quantities of earth had been washed into an old disused sewer, the existence of which would probably account for the disappearance of the water without any surface indication. The road must have been well made up, as although there was a heavy traffic nothing in the way of subsidence had been noticed, and the first indication of anything wrong was the fracture of the rider main by reason of the supporting soil being washed away from beneath it. The escaping gas appears to have got into the old sewer as there were five distinct explosions within the space of about 1½ hours, extending over a length of nearly 300 yards. It would be interesting to know what would have happened if the leakage of water and washing away of the soil had not been discovered in this manner. After a time a large area of the road surface would have collapsed, probably at a time when an extra strain was put upon it by the passing of some unusually heavy conveyance. The occurrence is another illustration of the fact that anything in the way of a disused cavity or chamber underground is sure to prove a serious source of danger in case of an escape of gas from a main pipe. If it consists of a disused sewer it greatly enhances the difficulty of location and discovery. The most troublesome and costly examples of leakage that have come within my own experience have partaken of this character. In one instance the actual defect was not ascertained until after some weeks search, and then at a point about half a mile away from the complaint of escaping gas.

Poison, like the word Mesopotamia, is a good word to conjure with. It conveys a great deal of meaning without in any way committing the person who uses it, and it is so frequently used, sometimes a *bona fide* but entirely erroneous point of view, and sometimes purposely as a means of injuring a competitor in trade, that it might be a public advantage if its use could be limited by law. For one thing it is so very indefinite. It may mean anything from a few hours' indisposition, leaving no permanent injury, to sudden death or to a life of incapacity. There are poisons *and* poisons, and therefore the word should not be used, especially in a popular sense, without some qualification, and this equally applies to official notices, medical instruction or general information. All who engage in active life run some risk of poison, and no one can take exception to the use of every possible precaution. But the thing can be carried to excess, and it is a question whether there is not, in the present day, too much talk about risks of poisoning, risks of infection and so on, and whether in trying to escape from one evil we do not open the door to another. I remember reading somewhere about an individual who always regulated his food on scientific principles, taking exactly the quantities of carbon, nitrogen, etc., that have been found to be necessary for the maintenance of the human system in the most robust condition. He is described as a thin, shaky and miserable individual, and he is by no means an isolated type.

The Home Office authorities have been for some time considering the risks attendant upon the use of gaseus fuels in factories and workshops. It has been dealt with in that deliberate manner peculiar to, and only practicable in a government department. And they have issued a notice that, although somewhat fanciful in places, is on the whole useful and interesting reading. They remark on the large extension in the production and use for industrial purposes of fuel gas having carbonic oxide as the fuel base. Although as far back as 1899 a Departmental Committee recommended that the manufacture and distribution of any poisonous gas that did not carry a distinct and pungent odor, should be prohibited, and that the proportion of carbonic oxide should be limited, it appears that the only practical application of these recommendations has been in respect to a few small gas undertakings who proposed to distribute water gas. From which it might be argued, either that the recommendations partook of the nature of a storm in a teacup, or that some supineness has been exhibited so far as their practical utility is concerned. Meanwhile many factory and workshop owners have been establishing apparatus for generating such gases on their own premises, with the result that some 50 or 60 cases of carbonic oxide poisoning occur in a year, of which about one-fourth prove fatal. There can be no doubt as to the necessity of cautioning amateur gas manufacturers, possibly devoid of knowledge as to the elementary principles of chemistry or engineering, but it seems scarcely necessary to point out the risks of using leaky gasfittings or stoves without flues. People who are so foolish or so reckless as to follow such practices are not likely to be deterred from them by a government memorandum, and a serious and undeserved prejudice tending to limit the industrial applications of gas may be established. Gas companies will do well to be on the watch for indications of any feeling in this direction and to be prepared with practical advice and assistance towards establishing a sense of security.

Items of Interest
FROM VARIOUS LOCALITIES.

"THE annual installation of officers elected by the Beneficial Association of the Washington (D. C.) Gas Light Company, which was held some evenings ago, was productive of much good fellowship. After the 'high men' had been properly placed in position, a musical programme of much excellence was enjoyed, and a well-served refreshment course preceded the postlude. The officers elected installed were: President, Thomas F. Holden—who seems to grow younger, despite his journeyings with 'Tom.' Fisher; Treasurer, G. M. Whitwell, whose claim to piety remains undenied; Secretary, H. G. Ott, whose belief that the Senate's best man (the ever-faithful Mr. Nixon) should shortly be in line for the Presidental nomination remains unshaken. To speak seriously about the Club, it may be truthfully said that its efforts have not been in vain, as the family of many a poor gas house worker can surely aver.—O. C."

A SALE of the plant and franchises of the Martinsburg (W. Va.) Gas Company has been effected. The purchasers—Messrs. Blye, Franklin and Houston—are residents of Philadelphia, Pa.

AT the annual meeting of the shareholders in the Consumers Gas and Fuel Company, of Atlantic City, N. J., it was decided to put the capital stock at $1,500,000 and the bonded indebtedness at $1,000,000—increases respectively of $800,000 and $300,000. The sums raised by these additions to capital account are to be devoted to plant enlargement, the same to include a new storage holder up to retaining 3,000,000 cubic feet. In the report it was noted that the sendout for last month equalled the sendout for last July, which would look abnormal, in that July is the greatest of the 12 at Atlantic City. The officers elected were: Directors, L. Kuehnle, R. McAllister, W. Reynolds, Jas. B. Reilly, M. Welman, C. P. King, E. H. Stokes, F. H. Treat, D. A. Howe, F. Mertens, R. A. Chester, J. W. Pittock and W. H. Lawton; President, L. Kuehnle; Vice-President, F. H. Treat; Treasurer, F. B. Aldrich; Secretary, F. W. Callaway.

THE acetylene gas plant, put in operation in South Range, Mich., a few weeks ago, was completely demolished by an explosion the morning of the 16th inst. The adjacent property (on which is included the plant of the Bosch Brewing Company) was badly shaken up. The total loss, as reported by the Marquette *Journal*, is not far from $15,000.

THE annual meeting of the shareholders in the Laclede Gas Light Company resulted in the selection of the following Directors: Jas. Campbell, August Gehner, Jno. I. Beggs, C. H. Huttig, T. H. West and C. W. Wetmore, J. E. Smith and D. R. Calhoun—the two latter succeed C. D. Smithers and E. M. Bulkley, respectively.

A CORRESPONDENT in Dallas, Tex., writing from there under date of the 16th ult., says: "There seems little doubt that control of the gas supply at Dallas, Tex., has passed into the hands of the Hodenpyle-Walbridge Company of your city, for Mr. C. W. Tippy, formerly in charge of that syndicate's property at Williamsport, Pa., has been appointed Manager at Dallas, vice Mr. John A. Myler, Jr., resigned. Other new appointees on the Dallas staff are: Mr. B. G. Loper, as Secretary-Treasurer, and Mr. H. C. Morris, as Superintendent of Distribution. The latter I imagine will have quite some work to do.—T. J. S."

MR. W. W. HESS, of Philadelphia, is said to be the main party in interest in the proposed construction of a gas works for the supply of Chestertown, Pa. It is said that the Hess combination really means business.

MR. SMITH W. CUNNINGHAM has resigned from the service of the Waynesboro (Pa.) Gas Company, the resignation to take effect today. The Company will also increase its capital stock in the sum of $12,500, the proceeds to go to pay for plant extensions.

MR. M. W. STROUD, President of the American Gas Company, has been elected a Director in the Delaware Insurance Company.

AT the January meeting of the New York Section of the Illuminating Engineering Society, held the 14th inst., the officers elected were: Chairman, E. L. Elliott; Secretary, A. J. Marshall; Managers, J. J. Humphreys, Jr., C. A. Littlefield. Following the election, 2 papers, on the topic of "Street Lighting," were presented, respectively by Mr. Walter C. Allen, Electrical Engineer for the District of Columbia, and Mr. S. C. Rhoades, Chief Engineer, New York Edison Company. The topic set for discussion at the February meeting is "The Selective Radiation of Incandescent Lamp Filaments."

THE following is the text of the bill, indicated officially as "H. R. 26,398," introduced in the House of Representatives, the 16th inst., by Mr. Smith, of Michigan:

"A bill regulating the quantity of carbon monoxide in gas in the District of Columbia.

"Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that hereafter neither the Washington Gas Light Company, the Georgetown Gas Light Company, their successors or assigns, nor any other company or corporation, shall manufacture, make, sell or supply any gas for heating or illuminating purposes in the District of Columbia which shall contain an excess of 10 per centum of carbon monoxide.

"SEC. 2. That the Inspector of gas and meters, under rules and regulations to be made, changed and amended from time to time by the Commissioner of the District of Columbia respecting his duties under this Act, and all other duties of said Inspector, shall from time to time inspect, examine and analyze the gas manufactured, made, sold or supplied for heating or illuminating purposes in said district, and report to the Commissioners of the District of Columbia of any of the provisions of this Act.

"SEC. 3. That each and every violation of any of the provisions of this Act by any person or corporation shall, on conviction, be punished by a fine of not less than $100 nor more than $500; and in addition to said fine the person, officer or agent of the company or corporation responsible for such violation, may, on conviction, in the discretion of the Court, be punished by imprisonment, not exceeding 6 months: *Provided*, That each and every day during which said violation shall constitute a separate offence: And, provided further, That prosecution under this Act shall be in the name of the District of Columbia in the police court of said District on information by the corporation counsel or any of his assistants."

"R. E." sends the following from Norfolk, Va., under date of the 25th inst.: "An order was issued last week by Judge Martin, in the Norfolk Court of Law and Chancery, enjoining the Norfolk (Va.) Railway and Light Company from shutting off the gas supply to the premises occupied by C. B. Kellinger, plaintiff. He claims that the Company rendered him a bill for gas that he did not consume. The bill was for $7.32 for gas used between November 24 and December 24. Kellinger asserted that it was impossible for an agent of the Company to have entered the house from December 9 to 24, as the house was closed and the family away between those dates. Further, he avers that during no month in his occupancy of the house did his gas bill theretofore exceed $4, it averaging about $3.50. The Company's contention was not heard during the proceedings for an injunction, and the Judge set March 31st as the day when the argument for a continuance of the injunction would be heard."

THE royalties paid into the city treasury of Omaha, Neb., by the Omaha Gas and the Omaha Electric Light and Power Companies during 1908, amounted to $41,025.17, of which sum the Gas Company paid in $26,572.37, and the Electric Company $14,454. The former represents a tax of 5 cents per 1,000 on each 1,000 sold to private consumers; the latter a royalty of 3 per cent. on its total receipts.

THE Gas Machinery Company, of Cleveland, O., has been awarded a contract by the Cairo City (Ills.) Gas Company, for new coal gas apparatus, the same to include purifier boxes of the outdoor type. Space is to be provided in the new building for water gas apparatus. The Company is also installing new benches and a holder to rest in steel tank. Mr. W. L. Powers, of Decatur, Ills., is acting as Consulting Engineer for the reconstruction going on at Cairo, and he is confident the plant will be in model, new shape before March 1st.

THESE bids were submitted by the Key City Gas Company, of Dubuque, Ia., in response to an invitation for tenders on public lighting account for the respective terms of 5 and 10 years:

Five Year Contract.			Ten Year Contract.		
No. Lamps.	Schedule.	Price per Year.	No. Lamps.	Schedule.	Price per Year.
100	All and every	$30.00	400	All and every	$23.50
100	Moonlight	26.50	400	Moonlight	20.25
200	All and every	26.50	500	All and every	23.00
200	Moonlight	23.50	590	Moonlight	20.00
300	All and every	24.50	600	All and every	23.00
300	Moonlight	21.00	600	Moonlight	20.00
400	All and every	24.00	...		....
400	Moonlight	20.85	...		....
500	All and every	23.75	...		....
500	Moonlight	20.40	...		....
600	All and every	23.50	...		....
600	Moonlight	20.25	...		....

The all and every night proposition called for 3,815 hours of lighting per annum, the average on the 1909 moonlight table being 2,140 hours.

THE proprietors of the Bridgeport (Conn.) Gas Light Company have petitioned the Legislature for the right to increase its capital in the sum of $700,000—or from $1,300,000 to $2,000,000.

MORE than 300 employees of the Public Service Corporation, of New Jersey, gathered in the assembly hall of the Prudential Building, Newark, N. J., some evenings ago, to listen to a lecture, by Mr. E. H. Earnshaw, Assistant General Manager of the Corporation's gas department, on "Illuminating Gas: What It Is: and How It Is Made." Mr. Earnshaw was in his best mood and tense, which is one way of putting the fact that the lecture was at once instructive and entertaining. A noteworthy feature of the attendance was the presence of Mr. Percy S. Young, the Comptroller of the Corporation. Besides presiding over the session Mr. Young delivered himself of a few pertinent remarks, which were completely appreciated by his audience, if the positive outbursts of applause which accompanied his delivery may be taken as evidence of how his hearers rated that which he said to them.

MR. FRANK AUSTIN, formerly of Mount Holly, N. J., has been elected General Manager and Treasurer of the Capital Gas and Electric Company, Frankfort, Ky.

AT the annual meeting of the Hartford City (Conn.) Gas Light Company the officers elected were: Directors, E. B. Bennett, S. C. Dunham, J. H. Knight, George Roberts, Jno. R. Hills, F. R. Cooley, S. R. Bertron, Geo. Bullock and John T. Roberts; President, E. B. Bennett; Vice-President, George Bullock; Secretary, Jno. A. McArthur; Treasurer and General Manager, R. E. Slade.

MR. E. G. COWDERY has been elected a member of the Board of Directors of the Peoples Gas Light and Coke Company, of Chicago, succeeding the late Mr. Anson R. Flower.

AT the annual meeting of the shareholders in the Delaware (O.) Gas Company the officers chosen were: Directors, H. W. Jones, Jno. W. Hills, F. P. Hills, T. C. Jones and V. T. Hills; President, T. C. Jones; Vice-President, Jas. W. Hills; Secretary, Jas. F. Stroub.

MR. R. F. CARPENTER, Cashier of the Springfield (Mo.) Gas and Electric Company since 1903, has resigned that position to engage with his father in the retail drygoods business in Dixon, Ills. Mr. Carpenter, Sr., has for two-score years managed the largest drygoods shop in Dixon, and seems finally to have convinced the son that his place is where the father's was. Mr. Carpenter leaves Springfield with the heartiest good wishes of every resident of that go-ahead Missouri city.

The Market for Gas Securities.

The short interest was seemingly eliminated pretty well in Consolidated last week, when the quotation, on comparatively light trading, broke about 8 points. The opening to-day (Friday) was at 121¼ to 122, but offerings were small and bidders were few. The Company will try its best to get a rehearing. Meanwhile there can be no doubt about it that it is making enemies by the many on account of its failure to announce definitely when the tied up cash will be let loose.

Brooklyn Union is 117 bid; Peoples, of Chicago, is 108 to 108½, and it cannot fail to cross 115 in the near future. Washington gas, despite Smith and his ridiculous carbon monoxide measure, manages to keep close to the 350 mark, at which figure it is decidedly cheap. The Massachusetts Lighting Companies' shares are now on a 6½ per cent. per annum basis.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

FEBRUARY 1.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated Gas Co.	$73,177,000	100	121½	122
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	98	101
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	—	105
Mutual Gas Co.	3,500,000	100	130	160
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	99	101
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	100	101
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	100	105
Con. 5's, due 1945, J. & J.	1,500,000	—	97	101
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	86	91
Standard	5,000,000	100	70	100
Preferred	5,000,000	100	100	135
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	100	105
The Brooklyn Union	15,000,000	1,000	117	125
1st Con. 5's, due 1948, M. & N.	15,000,000	—	91½	92
Yonkers	999,620	500	130	—
Out-of Town Companies.				
Bay State	50,000,000	50	1¼	1½
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	65
" 1st Mtg. 5's	500,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	63	66
Capital, Sacramento	500,000	50	—	95
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed Gold Bonds	7,660,000	1,000	104	105¼
Cincinnati Gas and Electric Co.	99,500,000	100	90¼	91
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	90½	91
Preferred	3,026,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	11,000,000	100	—	105
Mortgages, 6's	3,600,000	—	—	118
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	—	—	74½	75
Detroit City Gas Co	5,000,000	50	—	50
" Prior Lien 5's	4,619,000	1,000	97	100½
Detroit Gas Co., 5's	381,000	1,000	75	80
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co., 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Kansas City Gas Light Co., of Missouri	5,000,000	100	—	30
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis.	10,000,000	100	—	100
Preferred	2,500,000	100	60	90
Bonds	10,000,000	1,000	104	104¼
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	350,000	1,000	105	108¾
" 6 per cent. scrip, due 1910	100,000	25	60	60½
Massachusetts Gas Companies, of Boston	25,000,000	100	60¾	61
Preferred	25,000,000	100	90	90¾
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
Hudson County Gas Co., of New Jersey	10,500,000	—	112	113⅛
" Bonds, 5's	10,500,000	—	103	103½
Indianapolis	2,000,000	—	60	70
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100

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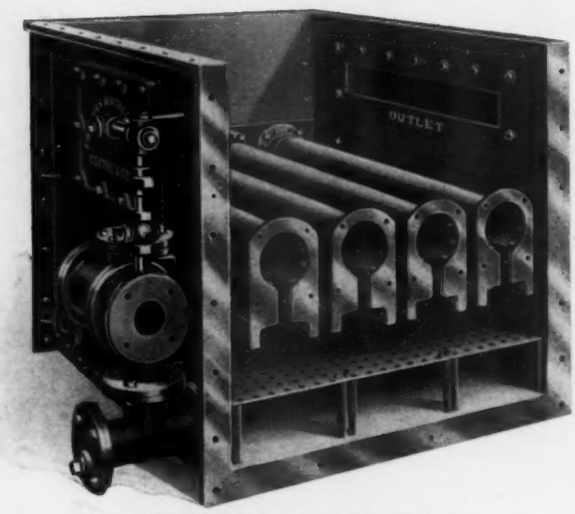
TAR EXTRACTORS, WASHERS, PURIFIERS,
VALVES, CONNECTIONS,
BY PRODUCT MACHINERY,
COMPLETE GAS PLANTS.



PATENT WASHER FOR COAL GAS OR WATER GAS.

THE GAS MACHINERY CO.
CLEVELAND, OHIO.

DIDIER-MARCH COMPANY,

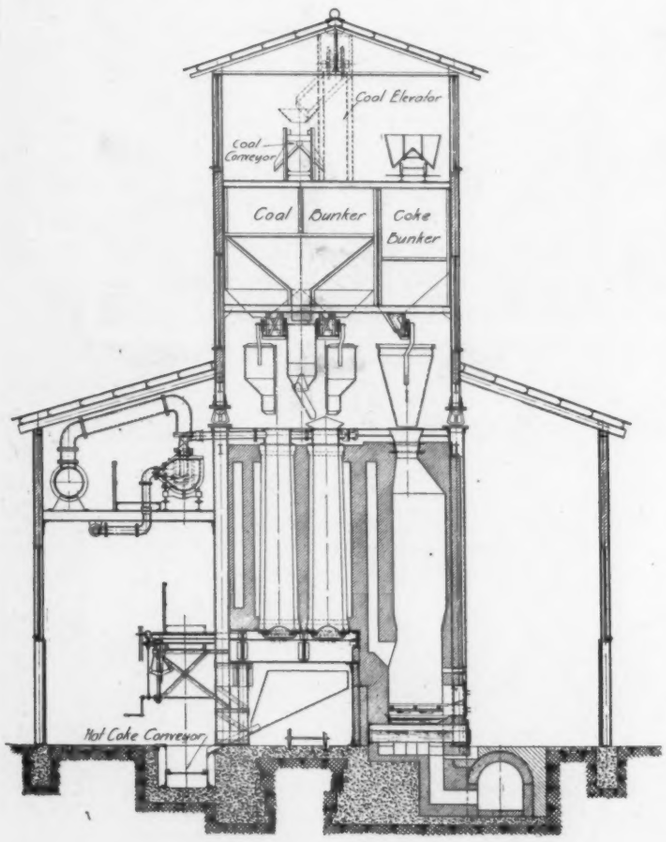
Hudson Terminal Building,

WORKS:

Keasbey, Perth Amboy, N. J.

50 Church Street,

NEW YORK, N. Y.



Cross Section of Retort House System Koerting For Vertical Benches

Dessau System of Vertical Retorts.

"The Only System in Successful Operation."

U. S. Patent No. 904043.

"Process Patent for the Carbonization of Coal in Vertical Retorts."

U. S. Patent No. 906187.

"Feeding Device."

U. S. Patent No. 899503.

"Retort House."

U. S. Patent No. 801268.

"Operating Mechanism for Bottom Mouthpieces."

339 Benches, with 3518 Retorts in operation and under construction.

TOTAL DAILY PRODUCING CAPACITY, 50,000,000 CUBIC FEET.

Amount of gas produced per man in 24 hours, 360,000 cu. ft.
Ten per cent. Increase in Yield.
Twenty to Forty per cent. Increase in Yield of Ammonia.
Best Quality of Coke.
Least percentage of Breeze. Low Fuel Consumption.
Tar produced Low in Carbon.
Extreme low cost of Retort House Labor.
Minimum expense in wear and tear.
NO NAPHTHALENE.
NO CYANOGEN.

Correspondence Solicited.

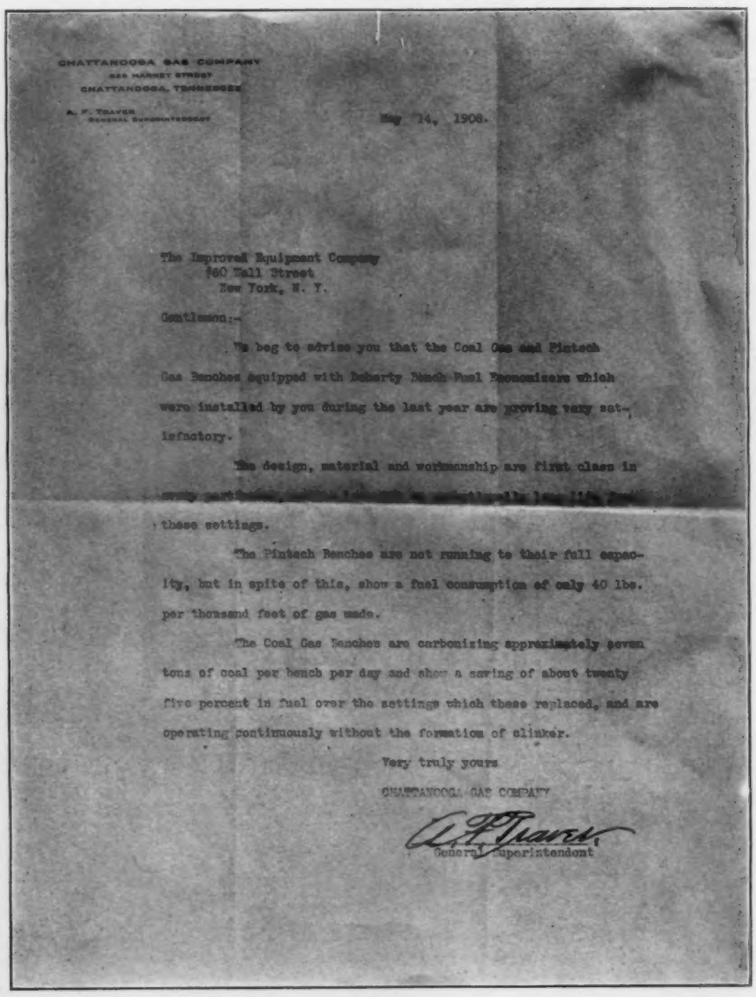
FREDERICK J. MAYER, General Manager.

WE STOP CLINKERS.

A line to us will bring one of our men to tell YOU how it can be done at YOUR Plant.

PARTIAL LIST OF PLANTS INSTALLED:

CHATTANOOCA, TENN.
KNOXVILLE, TENN.
DETROIT, MICH.
GRAND RAPIDS, MICH.
BATTLE CREEK, MICH.
FORT DODCE, IOWA.
MUSCATINE, IOWA.
LEBANON, PA.
MATTOON, ILLS.
DENVER, COLO.
SPOKANE, WASH.
WALLA WALLA, WASH
YAKIMA, WASH.



CHATTANOOGA GAS COMPANY
826 MARKET STREET
CHATTANOOGA, TENNESSEE

A. F. TRAVER
GENERAL SUPERINTENDENT

May 14, 1908.

The Improved Equipment Company
60 Wall Street
New York, N. Y.

Gentlemen:-

We beg to advise you that the Coal Gas and Pintsch Gas Benches equipped with Doherty Bench Fuel Economizers which were installed by you during the last year are proving very satisfactory.

The design, material and workmanship are first class in every particular, and we [illegible] these settings.

The Pintsch Benches are not running to their full capacity, but in spite of this, show a fuel consumption of only 40 lbs. per thousand feet of gas made.

The Coal Gas Benches are carbonizing approximately seven tons of coal per bench per day and show a saving of about twenty five percent in fuel over the settings which these replaced, and are operating continuously without the formation of clinker.

Very truly yours
CHATTANOOGA GAS COMPANY
A. F. Traver
General Superintendent

Send for Bulletin No. 2.

THE IMPROVED EQUIPMENT COMPANY,

MAIN OFFICES:
60 WALL STREET, NEW YORK.

SOLE LICENSEES FOR THE DOHERTY BENCH FUEL ECONOMIZER.

PARKER-RUSSELL MINING AND MFG. CO.,

ST. LOUIS, MO.

NEW YORK OFFICE: 45 Broadway.

GAS RETORTS AND FIREBRICK.

Benches.—We erect GAS RETORT BENCHES with Horizontal retorts having closed ends, or Through retorts up to 20 feet in length.

Slopers.—Also, SLOPERS on improved lines for Inclined Retorts.

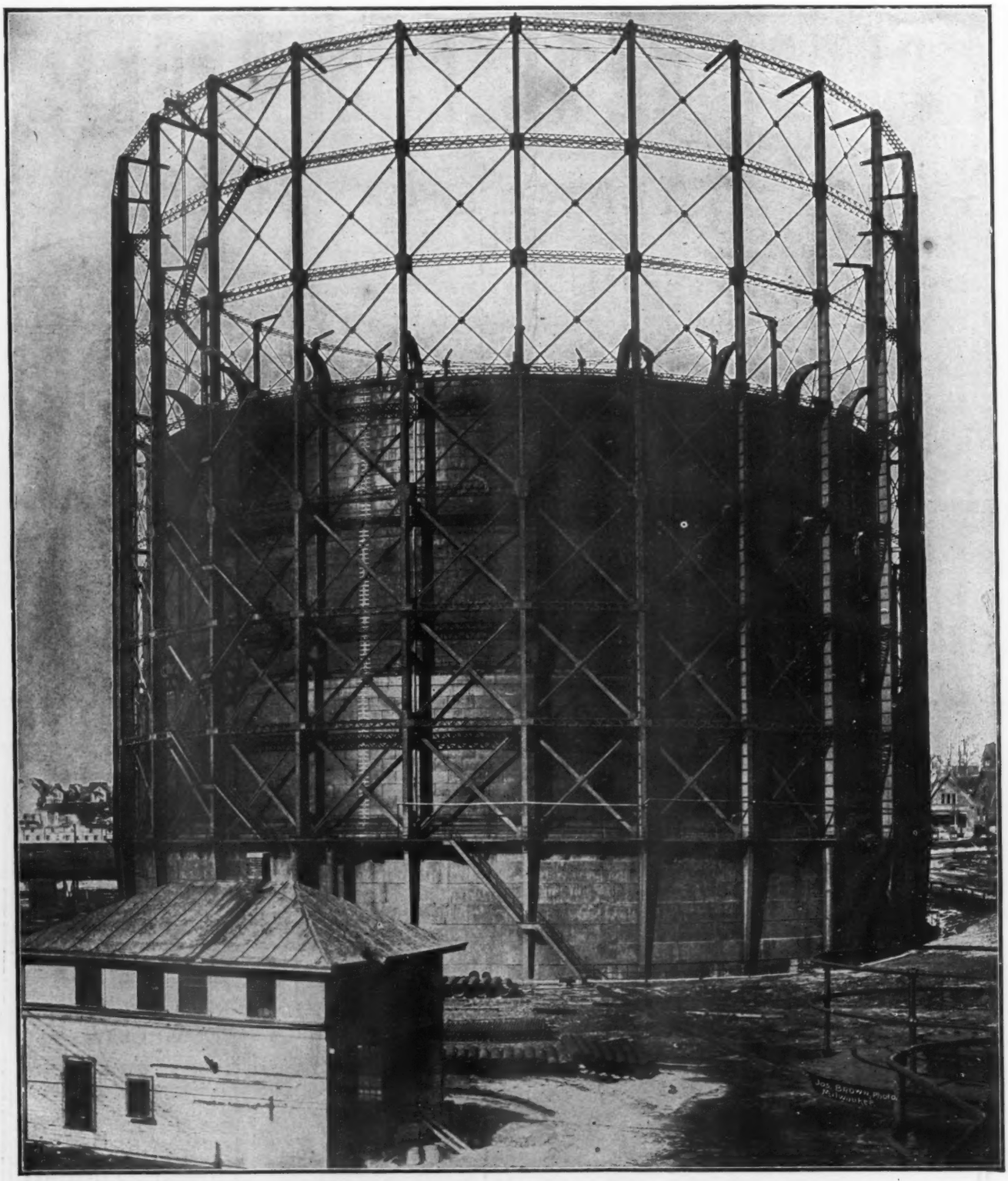
Stoking Machinery.—Sole Agents for U. S. and Canada for the Fiddes-Aldridge Simultaneous Discharging Charger. The "F.A.," or "One-Stroke" Machine. Cost of Carbonizing reduced to minimum. No Dust. Silent. No Waste of Coal. No Injury to Retorts.

Water Gas Linings.—We make a specialty of WATER GAS BLOCKS, and supply brick of superior grade for checkerwork.

Retort Houses and Conveying Machinery.—We also build Retort Houses, Coal and Coke Conveying Machinery. Plans, specifications and estimates cheerfully furnished.

CORRESPONDENCE SOLICITED.

ALL CONTRACTS MADE AS OF ST. LOUIS.



The Largest Steel Tank Gasholder in the World, 225 Feet 9 Inches Diameter, 35 Feet Deep, Five Lifts.

RITER-CONLEY MFG. CO.,

PITTSBURGH.

PLATE AND STRUCTURAL WORK OF EVERY DESCRIPTION.

COMPLETE COAL GAS PLANTS.

CRUSE-KEMPER COMPANY,

Gas Engineers and Builders.

GAS HOLDERS.

Western Sales Agent:
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Pacific Coast Agents:
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A. F. WEHNER, SECRETARY
R. K. WEHNER, TREASURER

ISBELL-PORTER COMPANY

GAS ENGINEERS & BUILDERS OF GAS WORKS

BENCH WORK

CHARGING AND DISCHARGING MACHINERY

MACKENZIE EXHAUSTERS

PRIMARY AND SECONDARY CONDENSERS FOR FRESH OR SALT WATER

ISBELL VALVES SPECIALS

TAR EXTRACTORS

P. & A. TAR EXTRACTORS FOR WATER GAS

ROTARY AMMONIA SCRUBBERS

SHAVING SCRUBBERS PURIFIERS STREET GOVERNORS

MAIN OFFICE AND WORKS
BRIDGE & OGDEN STREETS
NEWARK, N.J.
ESTABLISHED 1865

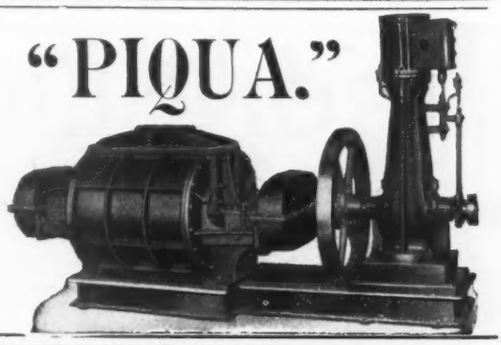
GAS EXHAUSTERS AND BLOWERS.

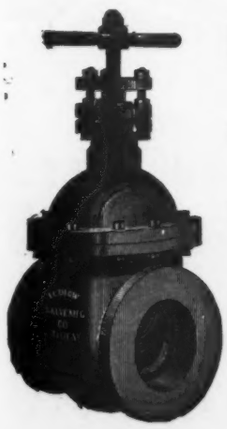
We have a full line of sizes for all standard pressures. The design, material and workmanship is A-1. Prompt Delivery and Reasonable Prices. WHY NOT give us YOUR requirements?

THE PIQUA BLOWER CO.,

PIQUA, OHIO.

"PIQUA."





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Ludlow Valve Mfg. Co.,

TROY. N. Y., U. S. A.

Double and Single Gate Valves, ¼" to 72",

—FOR—

Gas, Water, Steam, Oil, Ammonia, Etc.

HOT GAS VALVES A SPECIALTY.

Send for Catalogue.

QUINTARD IRON WORKS CO.,

Foot of Twelfth Street and East River, New York,

BENCH WORK,
CONDENSERS,
SHAVING SCRUBBERS,
CAST IRON FLANGED PIPE,
RIVETED STEEL PIPE.

FREDERICK W. FLOYD, Engineer.

ESTABLISHED 1856.

HENRY MAURER & SON,

Manufacturers of

High Grade Firebrick, Blocks, Tiles,

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Works: Maurer, N. J. Office: 420 E. 23d St., N. Y. City

EVENS & HOWARD FIRE BRICK CO. SAINT LOUIS

Last week we told you about our fireclay business. Now we take up with you the question of Bench Ironwork. We give you what you want, and not what we think you want. If you are undecided what you want it is our business to help you.

You may have the best arrangement of bench brickwork and yet get poor results. Gas in the retort is a good start, but is valueless till it makes the meter wheels go round. We can help you to make gas and preserve it well made for you to sell. It is cheaper to get gas just right than nearly right, and it is not right or approaching right if you leave some of it in the retorts, in the standpipes, and deposit part in the mains. It is the little details that tell in manufacturing gas. Choked pipes mean all kinds of loss and heaps of trouble. Carboned retorts will worry you all through the life of a bench, which may therefore not be a long time, but will seem a long time. Remember, "trifles make perfection, but perfection is no trifle." We know what you want, and if you ask us for it we can give it you. We want to enable you to do just a little better than you have been doing.

Write for Estimates on your Resetting Work. GAS WORKS DIVISION: A. S. B. LITTLE, Engineer.

COAL TAR AND AMMONIA,

By GEORGE LUNGE, PH.D. Third and Enlarged Editior.

Price, $15. For Sale by

A. M. CALLENDER & CO., 42 Pine Street, New York City.

"IRONCLAD"

Dry Gas Meters

With Cast-Iron Cases.

Excell all others

for capacity, slight absorption of pressure, simplicity, accuracy and durability. They measure both large and small volumes of either natural or artificial gas with accuracy and, if necessary, may be set up outside, exposed to the weather, without injury. All exposed screws and other parts can be sealed to prevcnt tampering.

Ask for "Ironclad" Catalogue G-I.

Pittsburg Meter Co.

General Office & Works, East Pittsburg, Pa.

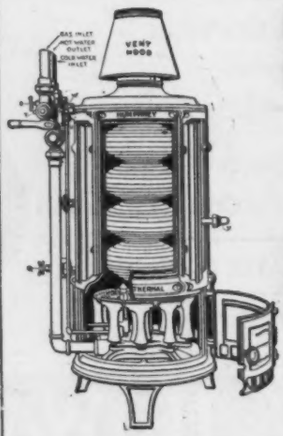
New York Office, 149 Broadway.

Manufacturers of
Gas Meters and Water Meters.

LLOYD CONSTRUCTION COMPANY

GAS APPARATUS.

DETROIT - MICHIGAN



Humphrey Auto-Thermal Instantaneous Water Heaters

Have every known desirable feature helping to efficiency, economy, durability and absolute safety.

FULLY GUARANTEED.
PRICES LOW.
QUALITY AND SERVICE HIGH.

Will you help us sell them?

HUMPHREY CO.,
Kalamazoo, Mich., U. S. A.

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FOR THE

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PRICE, $1.

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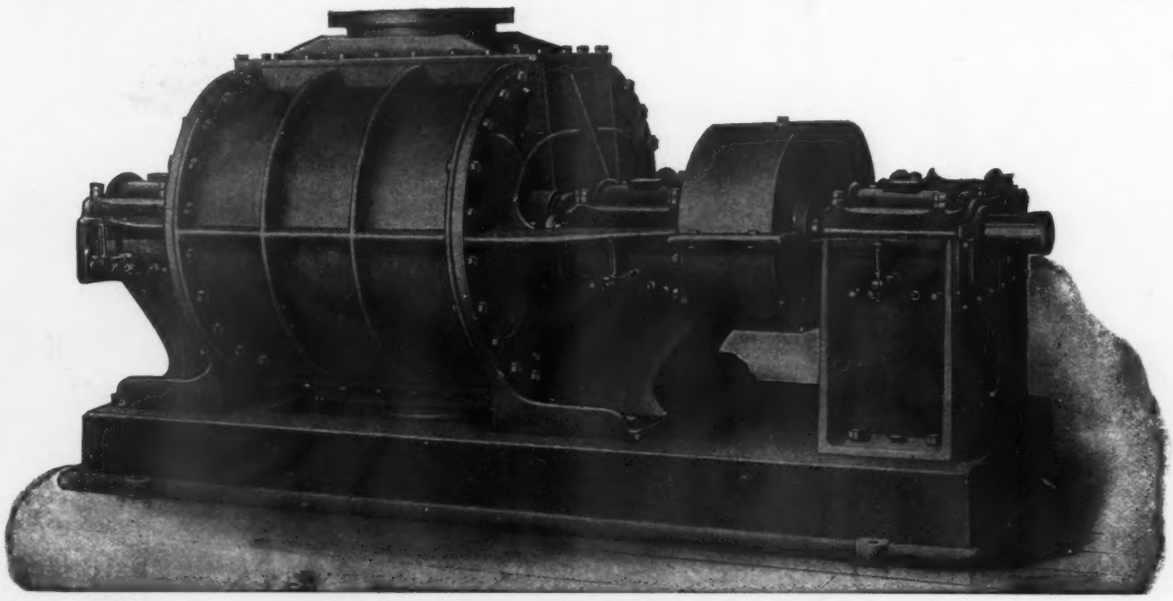
A. M. CALLENDER & CO., - 42 Pine St., New York.

ROOTS' EXHAUSTERS for HIGH and LOW PRESSURE WORK.

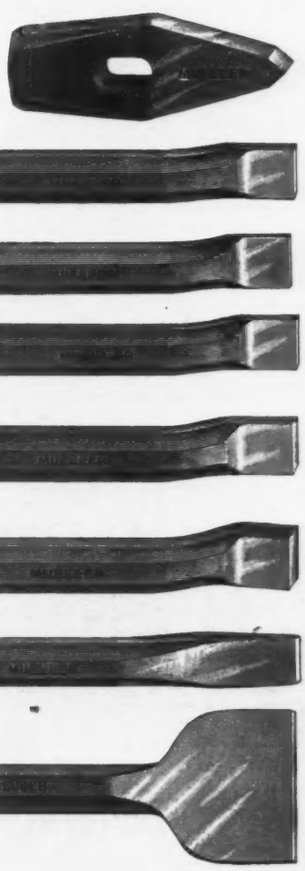
The highest efficiencies obtained. Most perfect devices for adjustment and maintenance of proper alignment. Use our flexible coupling to correct troubles caused by misalignment and engine shaft thrust. Our gas governor is the best. By-pass, gas valves and fittings.



P. H. & F. M. ROOTS COMPANY,

HOME OFFICE: Connersville, Ind. **NEW YORK OFFICE: 120-122 Liberty St.** **CHICAGO OFFICE: 1547 Marquette Bldg.**

SEND FOR POCKET EDITION OF "ENGINEERS' PRACTICAL REFERENCE BOOK."



Mueller Complete Calking Set.

These tools are hand forged. They conform to certain accepted designs, which have proved most effective in calking mains. They are made of the best octagonal tool steel, and tempered by our special process. Every tool is accurately gauged and given a fine finish.

The set consists of a hammer, yarning iron, pipe cutting chisel with handle, five calking irons ¼ to ⅝ thick at point, cold chisel and lead cutting chisel.

Sold singly or by set and in neat carrying case when specified.

Unconditionally Guaranteed.

TRADE MARK
MUELLER
REGISTERED

H. MUELLER MFG. CO.

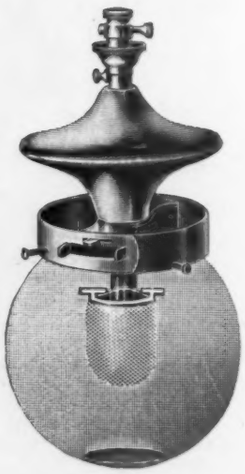
Works and General Offices,
DECATUR, ILL., U. S. A.
West Cerro Gordo St.

Eastern Division,
NEW YORK, N. Y., U. S. A.
254 Canal St. (cor. Lafayette).

BRAY INVERTED BURNERS.

THEY ARE BETTER BECAUSE

They are Noiseless.
Operate under all pressures, 10-10ths to 60-10ths.
Can be used with By-Pass.
Won't carbonize when turned low.
Bray's Patent Expansion Shade Ring prevents breakage of glassware.
Won't flash back.
A sample will prove this.
Write us for prices.



W. M. CRANE COMPANY,

SOLE U. S. AND CANADIAN AGENTS.

ADDRESS, AFTER FEBRUARY 1:

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CAST IRON GAS & WATER PIPE

MANUFACTURERS OF

CAST IRON PIPE AND SPECIAL CASTINGS

FOR WATER AND GAS.

Also, FLANGE PIPE, LAMP POSTS, Etc.

THE BRISTOL COMPANY,

Manufacturers of

TRADE MARK

BRISTOL'S

REG. U. S. PAT. OFFICE.

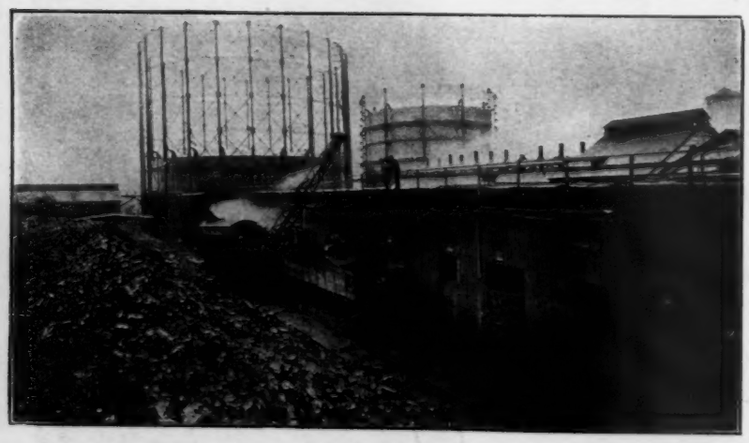
RECORDING PRESSURE GAUGES, RECORDING VACUUM GAUGES,
RECORDING THERMOMETERS, RECORDING VOLTMETERS,
RECORDING AMMETERS, RECORDING WATTMETERS,

AND

THE WM. H. BRISTOL ELECTRIC PYROMETERS AND PATENT SMOKED CHART RECORDERS.

THE BRISTOL CO., WATERBURY, CONN.

New York. BRANCH OFFICES. Chicago.



WRITE for our Catalogue "O" just issued. This Catalogue deals entirely with "Brownhoist" Machinery as used at Artificial Gas Plants for handling coal, coke and other materials rapidly and economically.

THE BROWN HOISTING MACHINERY COMPANY,

Designers and Builders of All Kinds of Hoisting Machinery.

Main Office and Works:
CLEVELAND, O.

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NEW YORK AND PITTSBURG.

PRACTICAL HANDBOOK ON GAS ENGINES, WITH INSTRUCTIONS FOR CARE AND WORKING OF THE SAME,

By G. LIECKFELD, C.E. Translated with Permission of the Author, by GEORGE M. RICHMOND, M.E. Price, $1

For Sale by A. M. CALLENDER & CO., 42 Pine St., New York City.

AMERICAN METER CO.,

NEW YORK, ST. LOUIS, PHILADELPHIA, SAN FRANCISCO, CHICAGO,

Photometrical and Experimental Apparatus.

PUBLIC LIGHTING TABLE.

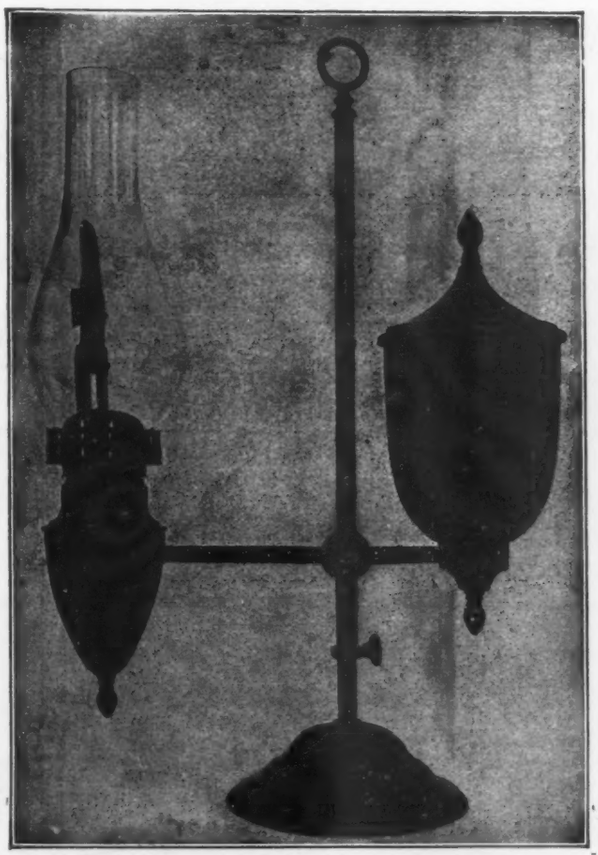
FEBRUARY, 1909.

Day of Week.	Date.	Table No. 1. Following the Moon. Light.	Extinguish.
Mon.	1	4.30AM	6.10AM
Tue.	2	5.20	6.10
Wed.	3	No L.	No L.
Thu.	4	No L FM	No L.
Fri.	5	No L.	No L.
Sat.	6	5.50PM	7.40PM
Sun.	7	6.00	8.40
Mon.	8	6.00	9.40
Tue.	9	6.00	10.40
Wed.	10	6.00	11.30
Thu.	11	6.00	12.30AM
Fri.	12	6.00	1.40
Sat.	13	6.00LQ	2.40
Sun.	14	6.10	3.40
Mon.	15	6.10	4.50
Tue.	16	6.10	5.50
Wed.	17	6.10	5.50
Thu.	18	6.10	5.50
Fri.	19	6.10NM	5.50
Sat.	20	6.10	5.50
Sun.	21	6.10	5.40
Mon.	22	6.10	5.40
Tue.	23	6.10	5.40
Wed.	24	10.00	5.40
Thu.	25	11.10	5.40
Fri.	26	12.20AM	5.40
Sat.	27	1.20	5.40
Sun.	28	2.20	5.30

TOTAL HOURS DURING 1909.

By Table No. 1.

	Hrs.Min.
January	212.20
February	183.40
March	173.00
April	151.10
May	144.10
June	138.50
July	145.40
August	160.30
September	180.00
October	201.00
November	216.30
December	233.40
Total, yr.	2140.30



THE ELLIOTT KEROSENE STANDARD PHOTOMETER LAMP.

***

10-Candle Power.

***

This lamp is a perfect substitute for the 10-candle Pentane Lamp hitherto used, and has the following advantages:

1st. It uses Standard Kerosene Oil (Pratt's Astral Oil or equivalent).

2d. It is remarkably steady. Will burn 24 hours continuously with less than 2 per cent. variation.

3d. It is much less dangerous than Pentane, which is a kind of gasolene.

4th. It is not easily affected by air currents in the photometer room.

5th. Since the lamp may burn continuously, the candle power of gas may be taken at any moment, if necessary. This insures steady illuminating power without waste of carburetting material.

6th. The first cost of the lamp brings it within the reach of even small gas works.

7th. Costs much less to maintain than a Pentane lamp or sperm candles doing the same service.

8th. Is not affected by the weather.

PUBLIC LIGHTING TABLE.

FEBRUARY, 1909.

Day of Week.	Date.	Table No. 2. New York City. All Night Lighting. Complete Lighting in One Hour From Time Given P. M.	Complete Extinguishing in 50 Minutes From Time Given A. M.
Mon.	1	4.47	6.07
Tue.	2	4.47	6.07
Wed.	3	4.47	6.07
Thu.	4	4.47	6.07
Fri.	5	4.57	6.02
Sat.	6	4.57	6.02
Sun.	7	4.57	6.02
Mon.	8	4.57	6.02
Tue.	9	4.57	6.02
Wed.	10	4.57	6.02
Thu.	11	4.57	6.02
Fri.	12	5.07	5.57
Sat.	13	5.07	5.57
Sun.	14	5.07	5.57
Mon.	15	5.07	5.57
Tue.	16	5.07	5.52
Wed.	17	5.07	5.52
Thu.	18	5.07	5.52
Fri.	19	5.17	5.47
Sat.	20	5.17	5.47
Sun.	21	5.17	5.47
Mon.	22	5.17	5.47
Tue.	23	5.17	5.42
Wed.	24	5.17	5.42
Thu.	25	5.17	5.42
Fri.	26	5.22	5.32
Sat.	27	5.22	5.32
Sun.	28	5.22	5.32

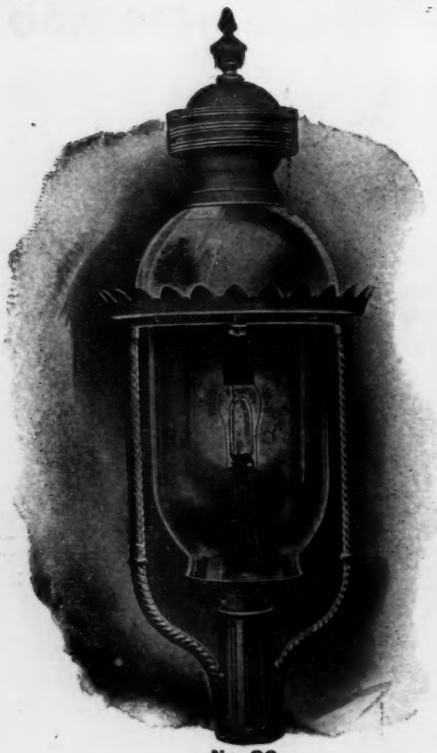
TOTAL HOURS DURING 1909.

	Hrs.Min.
January	428.30
February	358.15
March	353.10
April	298.10
May	263.20
June	234.45
July	248.30
August	278.00
September	311.25
October	370.05
November	397.40
December	438.35
	3980.25
Deduct on account of 50 min. extinguishing time	30.25
Total, yr.	3950.00

NEW YORK, 318 West 42d Street. BOSTON, 820 Beacon Building. PHILADELPHIA, Broad and Arch Streets. ST. LOUIS, 712 Roe Building. CHICAGO, 218 La Salle Street. SAN FRANCISCO, 512 Oak Street.

WELSBACH STREET LIGHTING COMPANY

....OF AMERICA....



No. 36.

Controls and Operates the **Welsbach System of Street Lighting,**

Which includes its specially DESIGNED and PATENTED BURNER for PARK LIGHTING exclusively.

Uniformly SUCCESSFUL in 150 Cities and Towns.

By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

POINTS OF MERIT:

It is { Economical, Attractive, Successful, Up-to-date.

IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

Correspondence Solicited from Gas Companies and Others interested in Municipal and Outside Lighting.

No. 38.

Welsbach Junior

THE BIGGEST LITTLE LIGHT IN THE WORLD.

The Welsbach Junior Light is 5 inches high--consists of burner, mantle and chimney--and is attractively boxed in a pasteboard carton.

As its effectiveness and economy become better known the Welsbach Junior will supersede, for universal use in the home, the old-style open flame gas burners.

Showing Welsbach Junior Light used in connection with ordinary glass globe.

Gives 50-Candle Power.

Uses Two Feet of Gas per Hour.

Attaches to Any Gas Fixture.

Completely Hidden from View.

Use your own globe--either gas or electric.

SMALL—EFFICIENT—ECONOMICAL.

Welsbach Company, FACTORIES: Gloucester, N. J. Columbus, O.

Salesrooms in all Leading Cities of the United States.

The United Gas Improvement Company,

Broad and Arch Streets, Philadelphia.

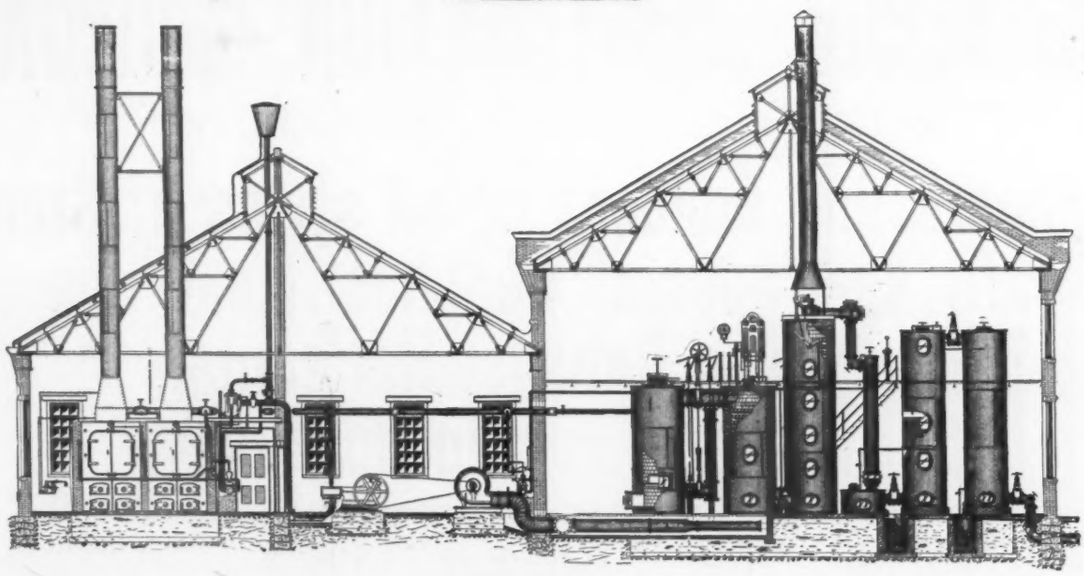
LESSEES, OPERATORS AND BUILDERS OF **GAS WORKS.**

Largest Builders of CARBURETTED WATER GAS PLANT IN AMERICA.

SOLE AMERICAN BUILDERS

OF THE

Standard Double-Superheater Lowe Water Gas Apparatus.



TOTAL SETS INSTALLED TO DECEMBER 31, 1908, ... 690
TOTAL DAILY CAPACITY, TO DECEMBER 31, 1908, ... 558,565,000 cu. ft.

Tar Extractors for Carburetted Water Gas.
Photometrical Apparatus.
Gas Analysis Apparatus.
Recording Gauges.
Straight Standpipe System for Coal Gas Retorts.
Straight Standpipe Cleaners.
Waste Heat Boiler.
Hygrometer.
Meters for Regulating Air and Steam Supply to Water Gas Apparatus.

Established 1858. Incorporated 1890.
CHAS. E. GREGORY, Prest. DAVID R. DALY, V.-Prest. & Treas.
H. D. ABERNETHY, Sec.

J. H. Gautier & Co.

Greene & Essex Streets,
Jersey City, N. J.

MANUFACTURERS OF

CLAY GAS RETORTS, FIRE CLAY TILES, FIRE BRICK and FIRE CLAY SPECIALTIES.

Ground Fire Clay, Fire Sand and Ground Fire Brick in Barrels and Bulk.

SOLE MANUFACTURERS OF THE

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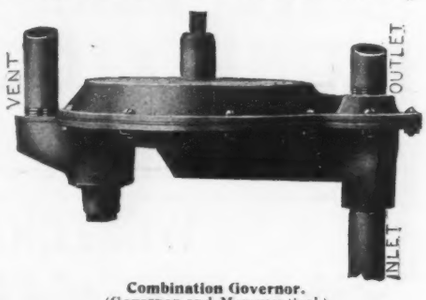

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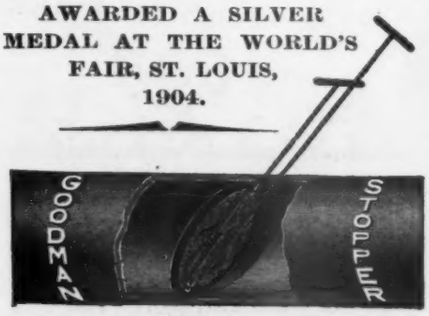

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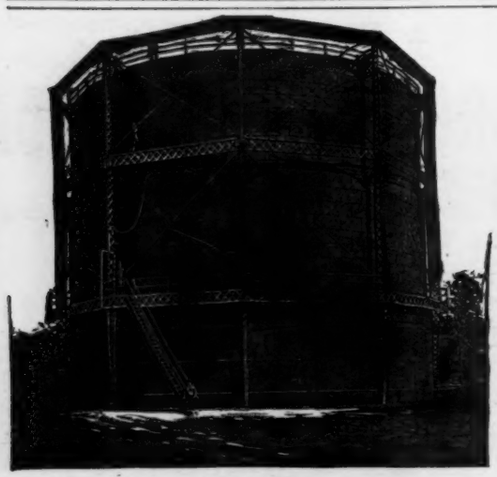

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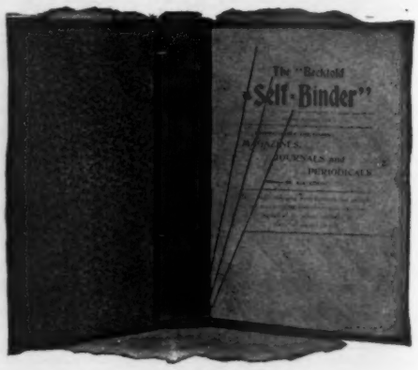

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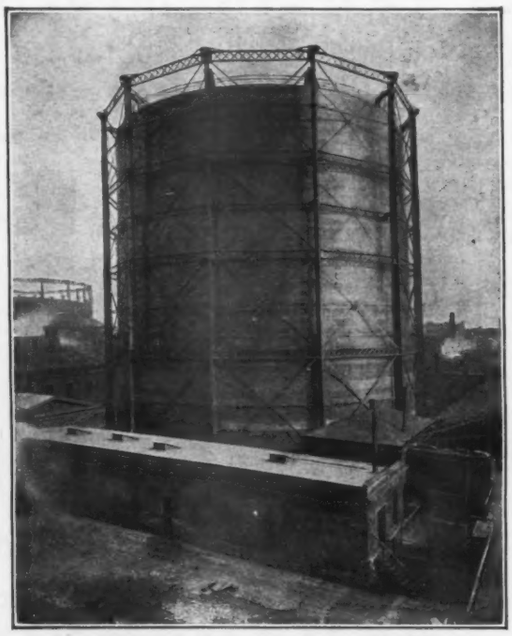

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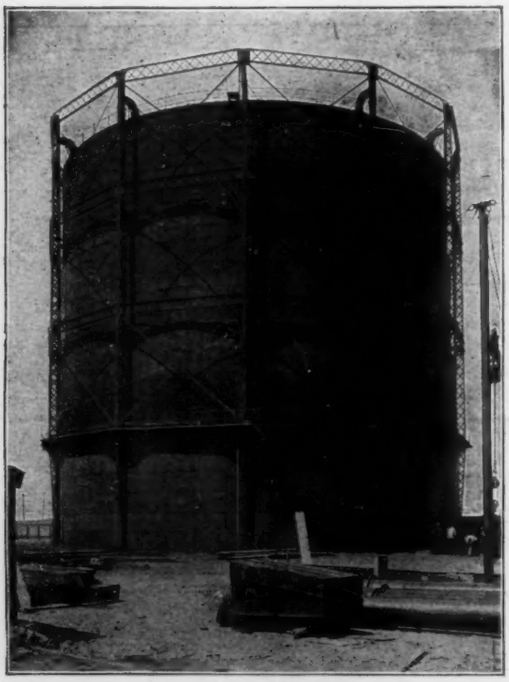

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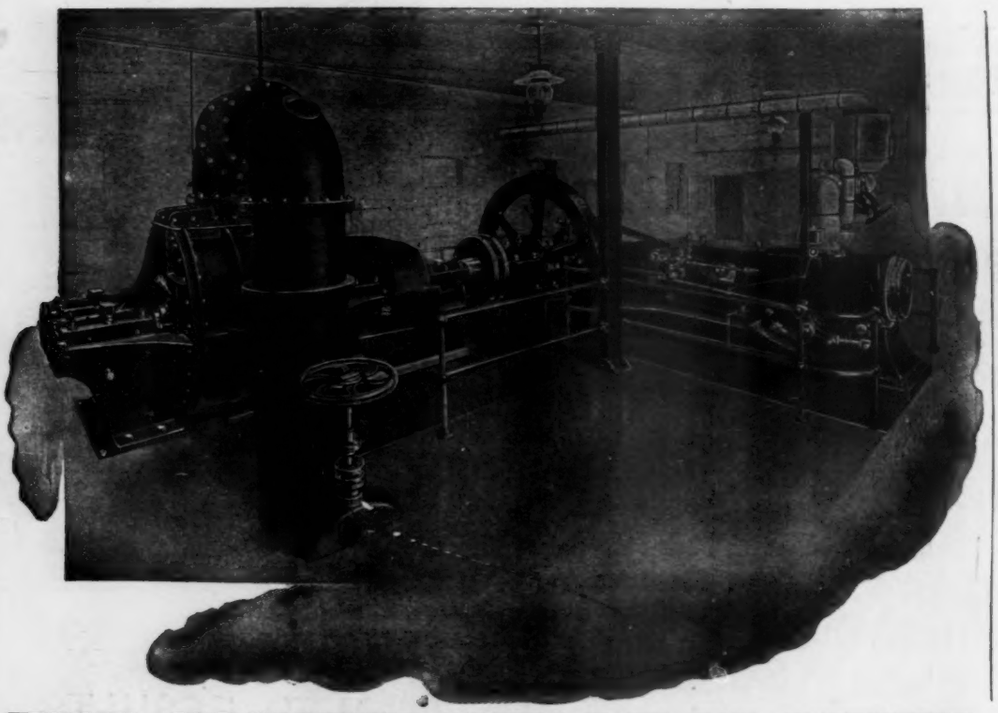

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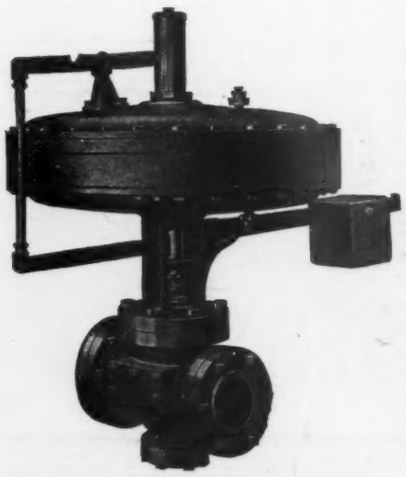

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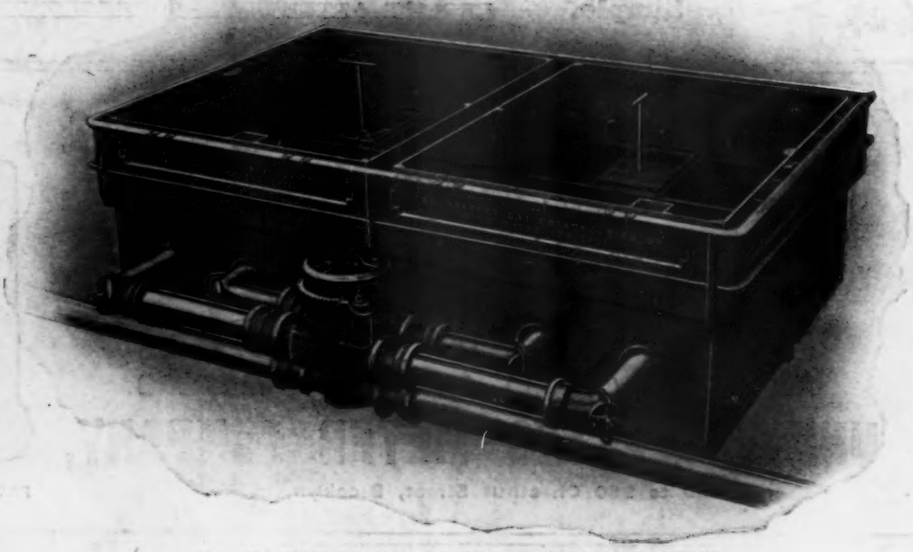

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